2017
TRIENNIAL ON-SITE SAFETY REVIEW OF SANTA CLARA VALLEY TRANSPORTATION AUTHORITY (VTA)

RAIL TRANSIT SAFETY BRANCH
SAFETY AND ENFORCEMENT DIVISION
CALIFORNIA PUBLIC UTILITIES COMMISSION
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Final Report

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2017 TRIENNIAL ON-SITE SAFETY REVIEW
SANTA CLARA VALLEY TRANSPORTATION AUTHORITY

ACKNOWLEDGEMENT

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1. EXECUTIVE SUMMARY

The California Public Utilities Commission's Safety and Enforcement Division (SED), Rail Transit Safety Branch staff (Staff), conducted an on-site system safety program review of the Santa Clara Valley Transportation Authority (VTA) in November 2017. The review focused on verifying VTA's implementation of its System Safety Program Plan (SSPP), as well as VTA's compliance with State and Federal rules and regulations. This report details Staff's investigatory actions, findings, and recommendations. The review revealed areas of non-compliance, as discussed below.

An opening conference meeting between VTA personnel and Staff immediately preceded the initial on-site review activities, which began on Monday, November 6, 2017. The review continued through November 17, 2017. A post-review conference with VTA personnel took place on December 14, 2017, with Staff providing VTA personnel with a summary of all findings. Staff identified 38 findings of non-compliance. From these findings, Staff issued 26 recommendations for corrective actions.

Section 2 of this report, titled Introduction, provides a summary of the authority under which the California Public Utilities Commission (CPUC or Commission) performs the triennial reviews and presents a brief chronology of the review. Section 3, Background, includes a description of the VTA system. Section 4 explains the procedures used by Staff during the System Safety Review. Staff's 38 findings of non-compliance and 26 recommendations are presented in Section 5, organized by source checklist numbers. Finally, the Appendices include a list of abbreviations and acronyms used in the report and checklists, tabulated findings and recommendations, and the complete set of review checklists with summaries of all review activities and the original comments, findings, and recommendations.

This report reflects Staff's triennial safety review of VTA. The VTA on-site triennial security review report is contained in a separate Report and is brought before the Commission for approval in a separate Resolution. [1]

[1] Staff's security review and report, "2017 Triennial Security Review of Santa Clara Valley Transportation Authority," is being brought before the Commission concurrently in Resolution ST-209.

2. INTRODUCTION

The Commission's General Order (GO) 164-E[2] *Rules and Regulations Governing State Safety Oversight of Rail Fixed Guideway Systems*, and the Federal Transit Administration's (FTA) Rule, Title 49 Code of Federal Regulations (CFR) Part 659, *Rail Fixed Guideway Systems: State Safety Oversight*, require the designated State Safety Oversight Agencies (SSOAs) to perform a review of each rail transit agency's system safety program at a minimum of once every three years. The triennial review verifies compliance and evaluates the effectiveness of each rail transit agency's SSPP and assesses the level of compliance with GO 164-D and other Commission safety requirements. Staff conducted the previous on-site safety review of VTA in November 2014.

On October 6, 2017, Staff advised the VTA General Manager by a letter of the pending review for scheduling purposes. The letter included 39 checklists that served as the basis for the review. Staff conducted an opening conference on November 6, 2017 with the VTA General Manager, Executive Management of Transit System Compliance, Superintendents, Supervisors and Protective Services.

Staff conducted the on-site safety inspections and records review on November 6-17, 2017. At the conclusion of each review activity, Staff provided VTA personnel with a verbal summary of the preliminary findings and discussed potential recommendations for corrective actions. On December 14, 2017, Staff conducted a post-review exit meeting with VTA's executive and department managers. Staff provided the attendees a summary of the findings of non-compliance from the 39 checklists and discussed the need for corrective actions where applicable.

[2] GO 164-D was in effect at the time Staff initiated the review. It has since been updated by GO 164-E. There is no significant difference between GO 164-D and GO 164-E with respect to the requirements regarding Triennial Safety and Triennial Security Reviews for Rail Transit Agencies.

3. BACKGROUND

VTA Rail System

The Santa Clara Valley Transportation Authority (VTA) is an independent special transit district that provides sustainable, accessible, community-focused transportation options that are innovative, environmentally responsible, and promote the vitality of the region.

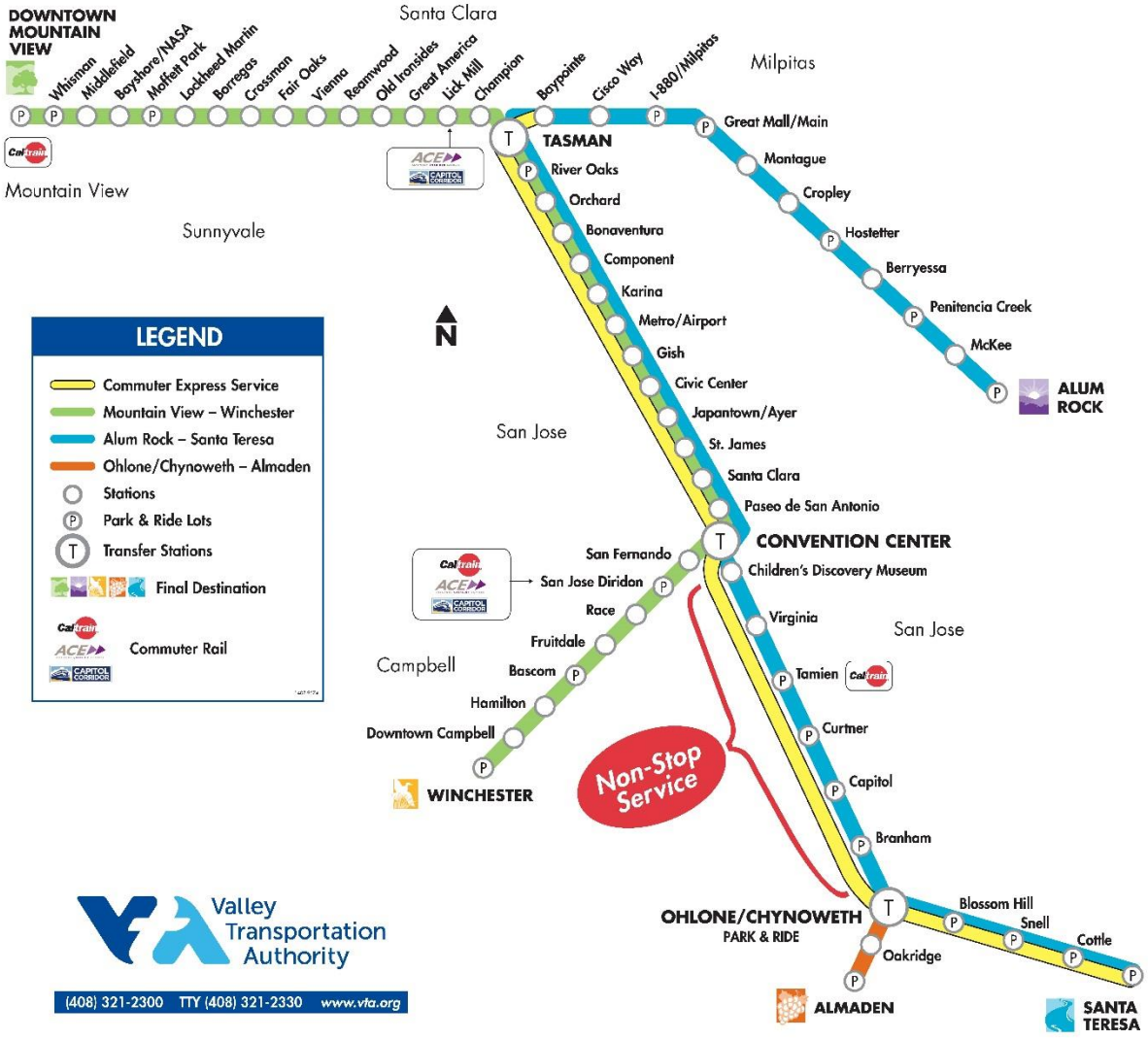
VTA provides bus, light rail, and paratransit services, as well as participates as a funding partner in regional rail service including Caltrain, Capitol Corridor, and the Altamont Corridor Express. As the county's congestion management agency, VTA is responsible for countywide transportation planning, including congestion management, design and construction of specific highway, pedestrian, and bicycle improvement projects, as well as promotion of transit-oriented development.

The Board of Directors has 18 members, including six ex-officio members, all of whom are elected officials appointed to serve on the Board by the jurisdictions they represent. Fifteen Directors are city council members and three are county Supervisors. Twelve Directors serve as voting members, with six Directors serving as alternates. The ex-officio members are non-voting members and three of them represent Santa Clara County on the Metropolitan Transit Commission (MTC).

VTA currently operates an urban transit service with a fleet of diesel, hybrid diesel-electric buses and light rail vehicles within Santa Clara County. VTA's service coverage is 346 square miles, serving 15 cities in Santa Clara County with a population of nearly 2 million. Historic trolley service may be provided in the downtown San Jose Transit Mall on a seasonal basis.

The VTA rail system consists of the Guadalupe, Tasman West, Tasman East, Capitol and Vasona Lines (See VTA Light Rail System Map) with two other proposed extensions. The total operating system is about 42.2 miles with 61 Light Rail Stations. The average weekday ridership of the light rail system was approximately 29,262 passengers per day in Fiscal Year 2017.

VTA LIGHT RAIL SYSTEM MAP



Guadalupe Line

The 21-mile Guadalupe light rail line began service in 1991, which extends from south San Jose, into downtown and continues to employment centers of north San Jose and Santa Clara. The Downtown Transit Mall in San Jose serves as a hub for rail/bus connections. Light rail and Caltrain service connects at the Tamien Station in San Jose. The Guadalupe Line has 27 light rail stations.

Tasman West Line

The 7.6-mile Tasman West light rail line began service in 1999, and travels through four cites: San Jose, Santa Clara, Sunnyvale, and Mountain View serving major employment centers of Silicon Valley. It links with Caltrain in Downtown Mountain View. In August 2014, VTA started providing light rail and bus service to the new Levi's Stadium for large events. Levi's Stadium is located near the Great America Light Rail Station. The Tasman West Line has 16 light rail stations.

Tasman East Line

The Tasman East light rail line is a 4.8-mile extension from North First Street to Hostetter Road which travels through the cities of San Jose and Milpitas. The first phase, a 1.9-mile extension from North First Street to I-880 along the median of Tasman Drive opened for revenue service in May 2001 and marked the beginning of VTA light rail vehicles in the City of Milpitas. The second phase, a 2.9-mile segment from I-880 to Hostetter Road along the Capitol Avenue median opened for revenue service in June 2004. Approximately 7,200 feet of this segment is grade separated over two railroad crossings, Montague Expressway, and other cross streets. The Tasman East Line has 6 light rail stations.

Capitol Line

The Capitol light rail line, a 3.5-mile extension of the Tasman light rail line opened for revenue service in June 2004. It travels along Capitol Avenue from just south of Hostetter Road to Alum Rock Avenue, north of Capitol Expressway and operates in the median of Capitol Avenue, with two vehicle travel lanes and a bike lane in each direction paralleling the track way. The Capitol Line has 4 light rail stations.

Vasona Line Extension Project

The Vasona Light Rail Project is a 5.3-mile light rail extension to the existing VTA Light Rail system and operates primarily on the existing Union Pacific Railroad right-of-way. Revenue service began in 2005. The Vasona Line has 8 light rail stations and links with Caltrain, ACE, and Capitol Corridor at Diridon Station.

Current Extensions in planning/construction

Eastridge to BART Regional Connector Project

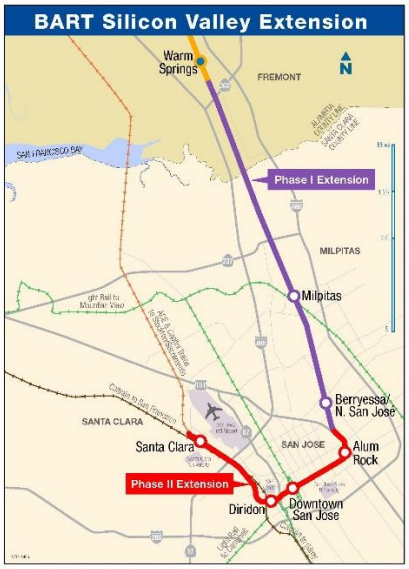
Plans include a 2.6-mile extension from the existing Alum Rock Station to Eastridge Transit Center. The alignment will be primarily grade separated. The Eastridge to BART Regional Connector Project is being implemented in phases. Phase I was completed in the Spring of 2015, and included the installation of sidewalk, landscape and street lighting on Capital Expressway from Capital Avenue to Tully Road and the reconfiguration of the Eastridge Transit Center. **Phase 2** will extend light rail from the existing Alum Rock Light Rail Station to the Eastridge Transit Center. Light rail will operate primarily in the center of Capitol Expressway in an elevated track structure from Capitol Avenue to Tully Road. The Eastridge extension will include two stations: Story and Eastridge. Construction will begin in mid-2019 and will be completed in mid-2023.

Vasona Junction Light Rail Extension

Plans include a 1.5-mile extension from Winchester Station into the Town of Los Gatos. A Federal environmental document for the Vasona Light Rail Extension was completed and approved by the Federal Transit Administration (FTA). The schedule for engineering work will resume in early 2018.

BART Silicon Valley Extension Project

The BART Silicon Valley Extension Project is a 16-mile extension of the BART system to Santa Clara County and is being delivered with a phased approach. Phase I, the Berryessa Extension, is a 10-mile extension, including two-station BART stations. This extension begins in Fremont, south of the Warm Springs/South Fremont BART Station, and proceeds in the former Union Pacific Railroad right-of-way through Milpitas, the location of the first station, to the Berryessa area of North San Jose, the location of the second station. The Berryessa Extension is scheduled for passenger service in Summer 2018. VTA is completing planning and environmental activities for Phase II of the BART Silicon Valley Extension, which includes a subway tunnel through downtown San Jose. Construction of the second phase is expected to begin in 2019 with passenger service targeted for 2026. Staff has reviewed and the Commission has approved the Safety and Security Certification Plan for this project in its Resolution ST-83.



BART SILICON VALLEY EXTENSION PROJECT

Status of the 2014 VTA Triennial Review

Staff last conducted VTA's triennial on-site safety review in November 2014. Staff made thirty-nine recommendations for corrective actions out of the thirty-seven checklists. Commission Resolution ST-171 granted approval of Staff's final report and its recommendations, ordering VTA to develop appropriate corrective action plans and implementation schedule to respond to the issued recommendations. Resolution ST-171 also ordered VTA to submit monthly status reports tracking the implementation of these corrective actions through full completion.

VTA developed and submitted a corrective action plan matrix and an implementation schedule to fulfill each of the thirty-nine recommendations in compliance with Commission Resolution ST- 171. All of the Corrective Action Plans (CAP's) related to the 2014 Triennial Audit have been corrected by VTA and verified and closed by Staff.

4. SAFETY REVIEW PROCEDURE

Staff conducted the 2017 safety review in accordance with Rail Transit Safety Section (Now Branch) Procedure RTSB-4, *Procedure for Performing Triennial Safety Audits of Rail Transit Systems*. Staff developed thirty-nine (39) checklists to cover various aspects of system safety responsibilities, based on Commission and FTA requirements, the VTA SSPP, safety-related VTA documents, and the Staff's knowledge of VTA operations. A list of the 39 checklists is contained in Appendix B. The completed checklists are included in Appendix D of this report.

Each checklist identified safety-related elements and characteristics that were either inspected directly by Staff or by reviewing reports and records. The completed checklists include Staff findings and recommendations corresponding to non-compliant findings based on VTA's SSPP, its procedures, and/or Commission regulations. The methods used to perform the review included:

- Discussions and interviews with VTA management and employees
- Review of rules, procedures, policies, and records
- Observations of operations and maintenance activities
- Interviews with rank-and-file employees
- Inspections and measurements of equipment and infrastructure

The review checklists concentrated on requirements that affect the safety of transit operations and are known or believed to be important in reducing safety hazards and preventing accidents.

5. FINDINGS AND RECOMMENDATIONS

The reviewers and inspectors who participated in the On-Site System Safety Review identified 38 findings of non-compliance and made 26 recommendations to improve VTA's system safety program. Review findings identify areas where changes should be made to further improve the SSPP. The review results are derived from activities observed, documents reviewed, issues discussed with management, and field inspections. These findings and recommendations are listed below and are grouped by checklist number.:

1. VTA Senior Management Involvement and Commitment to Safety

No findings of non-compliance; no recommendations.

2. System Safety Program Plan: Goals and Objectives

No findings of non-compliance; no recommendations.

3. Overview of Senior Management Structure

No findings of non-compliance; no recommendations.

4. System Safety Program Plan: Control and Update Procedure

No findings of non-compliance; no recommendations.

5. System Safety Program Plan: Implementation Activities and Responsibilities

No findings of non-compliance; no recommendations.

6. Hazard Management Process

Findings of Non-Compliance:

1. Staff noticed from the checklist activities that VTA has developed Industry Safe (IS) Program to track and analyze identified hazards. However, VTA has not fully implemented the hazard analysis portion using IS Program such as implementing Hazard Risk Index.

Recommendation:

1. VTA should fully implement the hazard analysis for the identified hazards as stated in its SSPP and AS-RM-PR-4160.

7. System Modification

Findings of Non-Compliance:

1. VTA Project #P0707 – did not have the current version Configuration Management Plan Form (April 20, 2016) used for the final project acknowledgement on final sign-off on January 18, 2017.

2. VTA C#33 Project Configuration Change Request Form for Signature Approval needs to be updated with current form dated 2016 (e.g. Transportation, Vehicle Maintenance, Way Power & Signal, Risk Manager signature lines were removed).

Recommendation:

2. VTA should ensure employees have access and use current approved forms.
3. VTA should update Appendix C of MTN-PR-1001 to reflect current division structure.

8. Safety and Security Certification

No findings of non-compliance; no recommendations.

9. Safety Data Collection and Analysis

No findings of non-compliance; no recommendations.

10. Accident/Incident Investigations

No findings of non-compliance; no recommendations.

11. Emergency Management Program

No findings of non-compliance; no recommendations.

12. Internal Safety Audits/Reviews

Findings of Non-Compliance:

1. VTA stated it will jointly audit Element 17, Interdepartmental/Interagency Coordination, with Elements 8, 12, 13, 14, 18, and 20. Element 17 was not jointly audited in Elements 12, 13, and 18.

Recommendation:

4. VTA should audit stated elements per Internal Safety Audit Schedule submitted to CPUC.

13-A. Rules Compliance: Observation and Enforcement

No findings of non-compliance; no recommendations.

13-B. Rules Compliance: Operations Safety Compliance

No findings of non-compliance; no recommendations.

13-C. Rules Compliance: Operator, Controller, and Maintenance Personnel Hours of Service

Findings of Non-Compliance:

1. The following VTA employees Hours Of Service was noted as non-compliant:
   - Field Transportation Supervisors: #9718, #13809, #5408
   - Rail Maintenance Employees: #7050, #8082

Recommendation:

5. VTA must ensure Hours of Service compliance by following General Order 143-B, Section 12.04.

13-D. Rules Compliance: Contractor Safety Program

No findings of non-compliance; no recommendations.

13-E. Rules Compliance: Operating Rules and Maintenance Procedures Manual and Operations Bulletin Revisions

No findings of non-compliance; no recommendations.

13-F. Rules Compliance: Operations Central Control & SCADA

No findings of non-compliance; no recommendations.

14-A. Facilities and Equipment Inspections: Non-Revenue Facilities and Wayside

Findings of Non-Compliance:

1. Required facilities inspections (Fire Suppression System, Crane & Boom, Facility Monthly Safety Checklist, and Standpipe) were not recorded consistently to note potential hazards and inspection findings; track potential hazards and inspection findings through implementation of corrective actions.
2. Trolley barn found with housekeeping and cleanliness safety defects, blocked fire extinguishers, tripping hazards, and blocked emergency exits.

Recommendation:

6. VTA should comply with current standard operating procedures for facility inspections, fire prevention system inspections, lock & key control, crane and boom inspections, and standpipe system inspections to include forms are properly completed, noted defects are tracked until completion, and corrected in a timely manner.

7. VTA should comply with housekeeping and cleanliness standards, which includes providing access to fire extinguishers and exits.

14-B. Facilities and Equipment Inspections: Stations and Emergency Equipment

Findings of Non-Compliance:

1. Staff noted several documents not initialed when technicians made corrections to forms MTN-PR-6201.
2. Staff noted open work order back as far as November 2, 2016.

Recommendation:

8. VTA should instruct all employees that using correction fluid/white out or scribbling/inking out mistakes on official forms is not valid. Any correction should be a single strike through the mistake and initialed by the employee. All forms should be filled out using black or blue ink only and no pencils.

14-C. Facilities and Equipment Inspections: Tunnels, Bridges, and Aerial Structures

Findings of Non-Compliance:

1. According to American Public Transportation Association (APTA) Standard RT-FS-S-001-02, Rail Transit Fixed Structures Inspection and Maintenance, Section 3.1, Inspection Frequency, "Each bridge shall be routinely inspected at regular intervals at least once every 24 months." VTA requires bridge structures to be inspected biennially (or 24 months); Staff found VTA inspected its bridge structures 33 months after its previous inspection in 2013. VTA did not inspect its bridge structures per industry standard.
2. VTA's bridges and structures inspection procedure does not specify time frame for a "biennial" inspection in months. Staff was unclear if VTA requires a biennial inspection to be done within 24 months, or 35 months – both are within two calendar years. Industry standard for a bridge inspection is once every 24 months.
3. The procedure requires an inspector to document Visual Condition Assessment (VCA) and proposed remedy for all identified issues during a bridge inspection. From Staff's sampled 2016 inspection records, Structure ID #60 missed a VCA, and Structure ID #82 missed a proposed remedy. Staff found VTA's inspectors did not document findings as required by the procedure.

Recommendation:

9. VTA should inspect its bridge structures at least once every 24 months per industry standard.
10. VTA's Structures Inspection procedure should specify inspection frequency in months.
11. VTA to comply with its MTN-PR-7101, Section 2 to rate each identified issue from inspections with Visual Condition Assessment, and proposed remedy.

14-D. Facilities and Equipment Inspections: GO 95 Right-of-Way Compliance

Findings of Non-Compliance:

1. VTA's MTN-PR 6150 requires the Overhead Catenary System (OCS) to be inspected for GO 95 compliance annually. From the sampled annual inspections, four annual inspections in year 2013 were skipped, one annual inspection in year 2015 was skipped; one annual inspection was past due in year 2017.
2. VTA's MTN-PR 6150 requires a monthly OCS inspection to be completed with 45 days of issuance. From the sampled monthly inspection records, one monthly inspection in year 2017 was completed 45 days past its issuance date.
3. VTA's MTN-PR 6150 requires a Power Supervisor signing off completed inspections. From the sampled annual inspection records, a year 2015 inspection form was missing; SAP (a database) data entry for that inspection indicated a Power Foreperson confirmed the inspection, but not a Supervisor. Due to missing paperwork, Staff was unable to verify supervisory sign off for that inspection.
4. VTA's MTN-PR 6150 requires a Power Foreperson and Power Supervisor signing off completed inspections. From the sampled annual inspection records, a year 2014 manhole inspection had no supervisor or foreperson's signature.
5. A trouble-call work order had no identified location. Although the work order indicated the responded VTA staff found no defect on the scene, Staff wanted to verify if the noted condition was true. Staff was unable to verify the condition because the work order did not have a location.

Recommendation:

12. VTA should comply with its overall procedure MTN-PR-6150, especially Sections 3.2, 3.3, 4.1, 5.0, and 9.2 for inspecting and documenting its OCS preventative maintenance as required.
13. VTA to ensure all generated work orders have location identified.

14-E. <u>Facilities and Equipment Inspections: Signal Communication, Train Control, Grade Crossing</u>

Findings of Non-Compliance:

1. At 101 On Ramp (82B-11.76), Staff noted gate tip light flashing. VTA 6205-PR-MTN 4.3.3 Manual on Uniform Traffic Control Devices (MUTCD) 8C.04. VTA Inspectors repaired on site. Staff noted 2 track signs on south gate faded and out of compliance. VTA 6205-PR-MTN 4.3.2; 49 CFR 234.245.
2. At Fairchild (82B-11.8), Staff noted 2 track signs faded (R15-2P), VTA 6205-PR-MTN 4.3.2; 49 CFR 234.245, and gate lights flickering on South gate. VTA 6205-PR-MTN 4.3.3; 49 CFR 234.217; MUTCD 8C.04. VTA inspectors repaired flickering lights on sight. Staff noted at Fairchild VTA exceeded the 30 day inspection intervals during 2 of the past 12 months. VTA 6205-PR-MTN 4.3; 49 CFR 234. No defects noted for inspection intervals. Refer comments section of the checklist.
3. At Winfield (82L-0.33), Staff noted no seal in J-box on North gate, GO 128 section 31.6, and no labels on STATA wires in signal case, 49 CFR 234.239. VTA inspectors corrected seal on site.
4. At Blossom Hill (82L-0.74), Staff noted 12" flashers on South cantilever were not directed in the right direction, VTA 6205-PR-MTN 4.3.3; 49 CFR 234.217; MUTCD 8C.04, and defective conduit seal in signal case, GO 128 Section 31.6. VTA corrected seal in case on site.
5. At Blossom River (82L-0.55), Staff noted flicker in gate flashers indicating a potential short or loose connection, VTA 6205-PR-MTN 4.3.3; 49 CFR 234.217; MUTCD 8C.04, as well as low

voltage on south gate while on battery power VTA 6205-PR-MTN 4.5.2; 49 CFR 234.221.

Recommendation:

14. VTA should require all supervisors to randomly check crossing immediately after signal crews have conducted PM's to verify that maintainers are conducting a proper inspection as prescribed in VTA's, CPUC's, and 49 CFR's rules.

14-F. Facilities and Equipment Inspections: Measurement and Testing Instrumentation

No findings of non-compliance; no recommendations.

14-G. Facilities and Equipment Inspections: Track and Wayside (ROW)

Findings of Non-Compliance:

1. Staff noted a potential tripping hazard within walkways due to holes and uneven surfaces during an inspection of Guadalupe yard and Wye.

Recommendation:

15. VTA should comply with General Order 118A, Standard 6 which requires that walkways in yards provide a reasonable regular surface**.**

15-A. Maintenance Audits and Inspections: Rail Vehicles (Revenue and Non-revenue)

Findings of Non-Compliance:

1. Hi-rail vehicles are not being properly maintained, daily inspections or pre-trip inspections are not being completed.

Recommendation:

16. VTA must institute a systematic inspection and maintenance program specifically designed for Hi-rail vehicles maintenance, this program should outline the preventative maintenance intervals required based on industry standards. Additionally, all required accessories on the vehicles shall be inspected and maintained so that they are in safe working condition.

15-B. Maintenance Audits and Inspections: Traction Power System

Findings of Non-Compliance:

1. Phones did not work in substation 2 and 9.

Recommendation:

17. VTA should inspect the phone(s) in each of the substations and repair broken phones in a timely manner.

15-C. Maintenance Audits and Inspections: Train Control and Signal Systems Maintenance

Findings of Non-Compliance:

1. Staff noted at the below stated locations, 10 year cable inspections failed testing:
    - Evelyn Station-B135 dated May 16, 2012
    - Central Expressway-XC074 to Gate Mech C dated June 8, 2012
    - Whisman Station-PED Crossing B dated May 17, 2012
    - Middlefield Station-B122 PED Crossing B dated May 21, 2012
    - Middlefield Station-SC117 to Light Assembly A dated May 21, 2012
    - 101 On Ramp-Gate Mech A dated 5-23-12
    - Innovation Way East-SC244 to Light Assembly D dated June 1, 2012
    - Lockheed Interlocking-LH250 to SC244 to Ped Xing A dated June 1, 2012
    - Lockheed Interlocking-LH250 to Ped Xing B dated June 1, 2012
    - Lockheed Interlocking-LH250 to Ped Xing D dated June 1, 2012

    When Staff requested repair/work order and retests records of said location, VTA could not provide them. VTA openly admitted they allowed said defects to go unchecked. Refer to comments section in the checklist. VTA 6207-PR-MTN; 49 CFR 234.267 and 236.108.

Recommendation:

18. VTA should implement a policy that does not allow external issues to interfere with the safe operations of the system. When Way Power and Signal identifies a safety related defect they should have the authority to make the appropriate corrections without undue delay.

15-D. <u>Maintenance Audits and Inspections: Tracks and Turnouts</u>

Findings of Non-Compliance:

1. Staff noted the following defective conditions during Track and Turnout inspections:
    a. Guadalupe Yard and Switches - unsecure heel blocks, broken washers, loose adjustable rail braces, loose joint bars, loose switch rods and broken bond wire.
    b. Various Mainline Curves – broken restraining rail and lateral movement of track (misalignment).
    c. Cottle Crossover - loose bolts, open switch point, broken washers.
2. Track and Turnout inspection reports do not describe the defect, location, and any actions taken to correct the problem and/or to protect train traffic.
3. Defective conditions found during inspections were not tracked until completion.

Recommendation:

19. VTA should comply with MTN-PR-6403 through 6411, 6415 & 6416 in order to properly describe the defect, location, action taken to correct defective conditions noted during inspections, and track found defects during inspections until completion.

15-E. <u>Maintenance Audits and Inspections: WP&S Quarterly Audit Program</u>

Findings of Non-Compliance:

1. VTA is missing the corrective action plan (CAP) Completion dead line of 14-Days as specified in Section 4.5.3 of SOP MTN-PR-6801, Way, Power and Signals (WP&S) Semi-Annual Audit version 2, in about 90% of the cases. Further, the WP&S staff and the internal auditors erroneously closed a CAP, reasoning that once it's out of their hands, it can be closed. In this case, the proposal to repair the issue was approved by VTA Procurement but the work did not even start.

Recommendation:

20. VTA WP&S Management should immediately proceed to modify Section 4.5.3 of SOP MTN-PR-6801 WPS Semi-Annual Audit version 2 to a more manageable and realistic time period for CAP completion than the current period of 14 days. Further, WP&S should not close CAPs until the work is completely done.

16-A. <u>Training and Certification Programs: Operators, Controllers, and Foremen</u>

Findings of Non-Compliance:

1. While reviewing 30 personnel training records for VTA Operating Rules, CPUC Staff found the time frequencies for recertification to be inconsistent, i.e. Employee #12029 – October 20, 2015, December 20, 2016. Recertification occurred past 12 months, in accordance to VTA's SSPP Element 13. However, it is not in compliance with VTA SOP 1.5, which requires annual recertification

Recommendation:

21. VTA should ensure training verbiage is consistent between SSPP Element 13 and SOP 1.5.

16-B. <u>Training and Certification Programs: Maintenance Employees and Contractors</u>

Findings of Non-Compliance:

1. Employee #14895 was not trained in the mandatory Confined Space training.
2. Upon initial review of various required training records, CPUC Staff learned that some records were being maintained by vendors.

Recommendation:

22. VTA LR Maintenance Training Department must maintain training folders and records as per MTN-PR-6800 Section 4.2 and 6.0.

17. <u>Configuration Management and Control</u>

Findings of Non-Compliance:

1. Neither Engineering and Transportation Program Delivery (ETPD) nor System Safety and Compliance were aware whether the missed employees on the training list had been trained yet or not.

Recommendation:

23. VTA should develop a procedure that requires the Project Manager or designee to ensure open items after all certifications are completed and verified to a closure.

18. Local, State, and Federal Requirements: Employee Safety Program

No findings of non-compliance; no recommendations.

19. Hazardous Materials Program

Findings of Non-Compliance:

1. VTA's facilities maintenance representatives and superintendents did not inspect facilities, grounds and equipment monthly for unsafe working conditions, including hazards materials, as required by its SSS-SFA-IIPP-0701, Section 3.3 and 3.4.
2. VTA did not inspect its hazards waste storage tanks daily as required by its SSS-SAF-IIPP-0701, Section 4.1.1.

Recommendation:

24. VTA should comply with its document SSS-SFA-IIPP-0701, Sections 3.3, 3.4 and 4.1.1 and conduct inspections accordingly.

20. Drug and Alcohol Program

No findings of non-compliance; no recommendations.

21. Procurement Process

Findings of Non-Compliance:

1. The procurement process does not go through the SSPP Hazard Management Process.

Recommendation:

25. VTA should update the SSPP to include procurement in their Hazard Management program.

22. GO 172 PED Compliance

No findings of non-compliance; no recommendations.

23. **GO 175 RWP Compliance**

Findings of Non-Compliance:

1. Roadway Worker Protection (RWP) Near Miss Reporting requires investigation and follow-up to be conducted, and follow-up results were not available.

Recommendation:

26. VTA should comply with GO 175 A and RWP Near Miss Reporting procedure, specifically, conduct follow-up and track results.

APPENDICES

A. Abbreviation and Acronym List

B. VTA 2017 Triennial Safety Review Checklist Index

C. VTA 2017 Triennial Safety Review Recommendations List

D. VTA 2017 Triennial Safety Review Checklists

APPENDIX A

ABBREVIATION and ACRONYM LIST

Abbreviation / Acronym	Description
CAP	Corrective Action Plan
CA MUTCD	California Manual on Uniform Traffic Control Devices
CFR	Code of Federal Regulations
Commission	California Public Utilities Commission
SED	Safety and Enforcement Division
CPUC	California Public Utilities Commission
FTA	Federal Transit Administration
GO	General Order
HOS	Hours of Service
IIPP	Injury and Illness Prevention Program
ISSA	Internal Safety and Security Audit
OCC	Operations Control Center
PHA	Preliminary Hazard Analysis
PM	Preventive Maintenance
RTSB	Rail Transit Safety Branch
RTOSS	Rail Transit Operations Safety Section
SCP	Safety Certification Plan
SCVR	Safety Certification Verification Report
SEPP	Security and Emergency Preparedness Program
SSPP	System Safety Program Plan
Staff	Safety and Enforcement Division personnel
VTA	Santa Clara Valley Transportation Authority
TSA	Transportation Security Administration
SCVTA	Santa Clara Valley Transportation Authority

APPENDIX B
2017 VTA TRIENNIAL SAFETY REVIEW CHECKLIST INDEX

Checklist No.	Element / Characteristic
1	Policy Statement and Authority for System Safety Program Plan: Management Involvement and Commitment to Safety
2	System Safety Program Plan: Goals and Objectives
3	Overview of Management Structure
4	System Safety Program Plan: Control and Update Procedure
5	System Safety Program Plan: Implementation Activities and Responsibilities
6	Hazard Management Process
7	System Modification
8	Safety and Security Certification
9	Safety Data Collection and Analysis
10	Accident/Incident Investigations
11	Emergency Management Program
12	Internal Safety Audit/Reviews
13-A	Rules Compliance: Observation and Enforcement
13-B	Rules Compliance: Operations Safety Compliance
13-C	Rules Compliance: Operator, Controller, and Maintenance Personnel Hours of Service
13-D	Rules Compliance: Contractor Safety Program
13-E	Rules Compliance: Operating Rules and Maintenance Procedures Manual and Operations Bulletin Revisions
13-F	Rules Compliance: Operations Control Center Rules and Procedures Manual Revisions & SCADA

14-A	Facilities and Equipment Inspections: Non-Revenue Facilities and Wayside
14-B	Facilities and Equipment Inspections: Stations and Emergency Equipment
14-C	Facilities and Equipment Inspections: Tunnels, Bridges, and Aerial Structures
14-D	Facilities and Equipment Inspections: GO 95 Right-of-Way Compliance
14-E	Facilities and Equipment Inspections: Signal Communication, Train Control, Grade Crossing
14-F	Equipment Maintenance Program: Measurement and Testing Instrumentation
14-G	Facilities and Equipment Inspections: Track and Wayside (ROW)
15-A	Maintenance Audits and Inspections: Rail Vehicles (Revenue and Non-revenue)
15-B	Maintenance Audits and Inspections: Traction Power System
15-C	Maintenance Audits and Inspections: Train Control and Signal Systems Maintenance
15-D	Maintenance Audits and Inspections: Tracks and Turnouts
15-E	Maintenance Audits and Inspections: WP&S Quarterly/Semi Annual Audit Program
16-A	Training and Certification Programs: Operators, Controllers, and Foremen
16-B	Training and Certification Programs: Maintenance Employees and Contractors
17	Configuration Management and Control
18	Local, State, and Federal Requirements: Employee Safety Program
19	Hazardous Materials Program
20	Drug and Alcohol Program
21	Procurement Process

22	GO 172 PED Program Compliance
23	GO 175 RWP Program Compliance

APPENDIX C

2017 VTA TRIENNIAL SAFETY REVIEW RECOMMENDATIONS LIST

No.	Recommendation	Checklist No.
1	VTA should fully implement the hazard analysis for the identified hazards as stated in its SSPP and AS-RM-PR-4160.	6
2	VTA should ensure employees have access and use current approved forms.	7
3	VTA should update Appendix C of MTN-PR-1001 to reflect current division structure.	7
4	VTA should audit stated elements per Internal Safety Audit Schedule submitted to CPUC.	12
5	VTA must ensure Hours of Service compliance by following General Order 143-B, Section 12.04.	13-C
6	VTA should comply with current standard operating procedures for facility inspections, fire prevention system inspections, lock & key control, crane and boom inspections, and standpipe system inspections to include forms are properly completed, noted defects are tracked until completion, and corrected in a timely manner.	14-A
7	VTA should comply with housekeeping and cleanliness standards, which includes providing access to fire extinguishers and exits.	14-A
8	VTA should instruct all employees that using correction fluid/white out or scribbling/inking out mistakes on official forms is not valid. Any correction should be a single strike through the mistake and initialed by the employee. All forms should be filled out using black or blue ink only and no pencils.	14-B
9	VTA should inspect its bridge structures at least once every 24 months per industry standard.	14-C
10	VTA's Structures Inspection procedure should specify inspection frequency in months.	14-C
11	VTA to comply with its MTN-PR-7101, Section 2 to rate each identified issue from inspections with Visual Condition Assessment, and proposed remedy.	14-C
12	VTA should comply with its overall procedure MTN-PR-6150, especially Sections 3.2, 3.3, 4.1, 5.0, and 9.2 for inspecting and documenting its OCS preventative maintenance as required.	14-D
13	VTA to ensure all generated work orders have location identified.	14-D
14	VTA should require all supervisors to randomly check crossing immediately after signal crews have conducted PM's to verify that	14-E

No.	Recommendation	Checklist No.
	maintainers are conducting a proper inspection as prescribed in VTA's, CPUC's, and FRA's rules.	
15	VTA should comply with General Order 118A, Standard 6, which requires walkways in yards to provide a reasonable regular surface.	14-G
16	VTA must institute a systematic inspection and maintenance program specifically designed for Hi-rail vehicles maintenance, this program should outline the preventative maintenance intervals required based on industry standards. Additionally, all required accessories on the vehicles shall be inspected and maintained so that they are in safe working condition.	15-A
17	VTA should inspect the phone(s) in each of the substations and repair broken phones in a timely manner.	15-B
18	VTA should implement a policy that does not allow external issues to interfere with the safe operations of the system. When Way Power and Signal identifies a safety related defect they should have the authority to make the appropriate corrections without undue delay.	15-C
19	VTA should comply with MTN-PR-6403 through 6411, 6415 & 6416 in order to properly describe the defect, location, action taken to correct defective conditions noted during inspections, and track found defects during inspections until completion.	15-D
20	VTA WP&S Management should immediately proceed to modify Section 4.5.3 of SOP MTN-PR-6801 WPS Semi-Annual Audit version 2 to a more manageable and realistic time period for CAP completion than the current period of 14 days. Further, WP&S should not close CAPs until the work is completely done.	15-E
21	VTA should ensure training verbiage is consistent between SSPP Element 13 and SOP 1.5.	16-A
22	VTA LR Maintenance Training Department must maintain training folders and records as per MTN-PR-6800 Section 4.2 and 6.0.	16-B
23	VTA should develop a procedure that requires the Project Manager or designee to ensure open items after all certifications are completed and verified to a closure.	17
24	VTA should comply with its document SSS-SFA-IIPP-0701, Section 3.3, 3.4 and 4.1.1 and conduct inspections accordingly.	19
25	VTA should update the SSPP to include procurement in their Hazard Management program.	21
26	VTA should comply with GO 175 A and RWP Near Miss Reporting procedure, specifically, conduct follow-up and track results.	23

APPENDIX D

2017 VTA TRIENNIAL SAFETY REVIEW CHECKLISTS

CPUC develops a series of checklists prior to each triennial safety review of California Rail Transit Agencies. These checklists are based on the 21 elements that are required to appear in each agency's SSPP by 49 CFR Part 659 and are customized according to the SSPP and the unique features of the agency under review.

VTA received a draft version of these checklists, showing only the Reference Criteria and Element/Characteristics and Method of Verification fields 30 days prior to the audit start. Although each checklist provides guidance for the activities, CPUC reviewers are authorized to inquire about and inspect any aspect of the VTA system they determine to be relevant to system safety and the checklist in question.

CPUC reviewers provided immediate feedback to VTA representatives regarding any initial findings and potential recommendations following each checklist's activities. The reviewers then revise the checklist document to include a summary of their review, findings of non-compliance, recommendations for corrective action, and any additional comments. The complete checklists are provided below.

2017 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SANTA CLARA VALLEY TRANSPORTATION AUTHORITY (VTA)

Checklist No.	**1**	**Element**	**Policy Statement and Authority for System Safety Program Plan: Management Involvement and Commitment to Safety**
Date of Audit	November 7, 2017	**Department(s)**	VTA Executive Management
Auditors/ Inspectors	Daren Gilbert Stephen Artus Mike Borer Rupa Shitole	**Persons Contacted**	Ms. Nuria Fernandez, General Manager/CEO Inez Evans, Chief Operating Officer Rufus Francis, Director System Safety and Compliance Angelique Gaeta, Chief of Staff Edna Pampy, Principal Safety Auditor (Observer)

REFERENCE CRITERIA

1. CPUC General Order 164-D
2. VTA System Safety Program Plan (SSPP) version 13 dated February 2015
3. VTA System Safety Program Plan (SSPP) version 14 dated February 2016

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Policy Statement and Authority for System Safety Program Plan:
VTA Executive Management Involvement and Commitment to Safety

Interview VTA's General Manager (GM/CEO) and Chief Operating Officer (COO) to discuss:

1. Source, frequency, and depth of safety information provided to Executive Management, whether safety is included as a regular topic at VTA Executive Management meetings, and how safety information is communicated.
2. Methods and incentives included in the management performance system to facilitate a system safety culture within the organization.
3. Formal meetings held and attended by VTA Executive Management to discuss safety performance, such as ongoing evaluation of goals and targets.
4. The GM's and COO's awareness of high priority safety issues related to operations, maintenance, and ongoing capital or improvement projects.
5. The GM's and COO's awareness of the status of all corrective actions generated by the System Safety and Compliance Department through internal safety and security audits, the hazard management process, accident/incident investigations, inspections, or other channels.

6. The System Safety and Compliance Department's reporting relationship to VTA's Executive and Senior Management, and management's participation in safety activities.
7. Which individuals and departments are involved in making safety decisions and to what degree Executive Management is involved?
8. Scope of Executive Management involvement, coordination, and communication in developing SSPP revisions.
9. Is safety included as a regular topic at the VTA Board Meetings and whether VTA's GM/COO provides updates and concerns?
10. The process for the periodic review of the resources devoted to safety by VTA GM/CEO and VTA Executive Management Team.
11. The inclusion of safety responsibilities in job evaluations for managers, supervisors, and employees.
12. Does the GM ever visit the Operations Control Center, LRV Maintenance Facility, WP&S Facility and talk to the rank and file employees to discuss their safety concerns?

FINDINGS AND RECOMMENDATIONS

Activities: CPUC Staff interviewed VTA GM and her executive staff and noted following.

1. The GM stated Safety is the number one priority, safety is everyone's business not just Safety department, and VTA is trying to include safety culture priority. Safety policies and procedures are up to date and Ms. Fernandez is responsible for overall safety and security of the system.
   There is a weekly Communications Meeting every Monday morning and Safety is participating in these weekly meetings along with other communications group members. Some agenda topics discussed at the meeting are incentives, incidents, operation related issues, any corrective action needed, any system impacts or availabilities of trains, and rail rehabilitation projects.
   Additionally, monthly RoundTable Executive Team meetings are being conducted and this meeting is chaired by the GM. The Executive team meetings attendees include Chief of staff, Chiefs, Directors, General Counsel from Safety, Planning, Operations, Communications, IT, Engineering, etc. One on one meetings is conducted with Safety and Chief of Staff on a monthly basis and topics discussed include: safety related audits, inspections, outstanding issues, ongoing periodic meetings, performance evaluation, employee status (e.g., retirements and vacancies), and budget, etc.
   At the Board of Directors Meetings, the GM reports on safety, security, program initiatives, incidents, injuries, provides data in the form of charts/graphs, etc. A performance evaluation for July 2017 was discussed at the last board meeting along with Bus and Rail overall incidents/accidents performance.

The Safety, Security, Transportation, Planning and Operations (SSTPO) Committee is a Board standing committee comprised of the General Counsel, Board of Directors, VTA Chiefs, VTA Directors, etc. At these committee meetings, VTA Operations may be requested to give reports.

VTA Safety holds Safety Tailgates, Safety Corner on the intranet, Lunch and Learn series related to Safety and other related topics (may be once in every 2 weeks).

VTA Operations and Maintenance holds Joint VTA Labor Union safety meetings including Local 25 and 521 SEIU Safety Committee that is chaired by the VTA Director of System Safety and Compliance. Corrective Action Plans are discussed if needed.

Other VTA meetings include Rail System Safety Review Board (RSSRB) meetings and Fire Life Safety Committee (FLSC) meetings. There are seven (7) Fire Departments (FDs) from different cities that have to interact with VTA system. The FDs are invited as needed to the FLSC meeting, but ongoing training and communications does occur.

Additionally, Santa Clara Emergency Council Meeting with County/City including VTA Operations and Safety, Monthly safety and security sync up meetings (bottom up & top down approach) and attendees include VTA Chiefs, Deputies, Directors, Safety, Operations, Security, etc.

2. Safety is separate but collectively embraced. VTA adopted Safety as one of the core values. Safety Awards Program is conducted quarterly. Safety data is reviewed and achievement milestones are analyzed. Recognition of the awards is conducted at the Board meetings. Operational environment and other training is given as needed, and during employee orientation. Safety Department noted that flyers & posters are out there in various channels promoting safety campaigns – demonstrated via handouts given to customers and employees on health and injuries, and safety. Sting operations and citation enforcement were conducted as needed, etc.

   As an example of safety promotion and incentives relative to capital projects, for the Silicon Valley Berryessa Extension Project, the Safety report is shared with the VTA GM (a group within VTA is devoted to the BART project who has all the checks and balances on that project). Every month the VTA GM gets a briefing, including all injuries on this project.
3. Refer to #1
4. The VTA Executive team is notified of all accident and incident status updates: the GM is notified of Corrective Action Plans (CAPs) from triennial reviews, the COO gets the ongoing inspection CAPs, and the Capital Improvements Project Committee reports are continuous throughout the project and reporting to executive management is ongoing.
5. The GM and the COO are aware of all CAPs generated via inspections, triennials, internal audits, accidents, etc.
6. Safety is a part of the Executive Management Team, but Safety reports to the Chief of Staff. Chief of Staff oversees the Director of System Safety and Compliance including Security. Chief of Staff directly reports to the GM, while Operations and Safety are not

reporting to the same person. VTA Operations reports to the COO. Chiefs and Deputies take care of all needs for operations.

7. Each employee, Director of System Safety and Compliance, Deputies, Board, COO, all are accountable for safety. Director of System Safety and Compliance is involved in all major purchases to assure safety. For capital projects, Safety reviews contracts and other documents and provides comments. Safety is responsible for safety part of the new employee orientation. Safety and Operations are involved in review of events, etc.
8. GM and COO review and sign the SSPP updates.
9. Refer to #1 & #2
10. There are five advisory and four standing committees other than Board meeting that periodically review safety resources. There are one-on-one meetings of executive management to various departments, annual Budget committee reviews, allocations of resources to address issues, and evaluation of budget and expenditures during the year.
11. VTA's Biennial budget process is in place with Budget and Finance and the recent Apprentice Program is being one of the programs that are helping VTA to train new graduates from colleges.
    Success Factors – This program is the first step to identify managers, supervisors, employee's training accomplishments, goals, etc. towards their safety responsibilities. Managers and supervisors evaluate safety behaviors via this program. A trail developed to hold people to accountability for safety management. All employees are involved as well.
12. GM makes periodic visits to Operations Control Center and Maintenance facilities. The GM talks to rank and file employees without supervisor present. Other opportunities to meet with the GM include Coffee with the GM, which includes discussion topics such as: helping employees to move to the right position, highlights of strength/ achievements, training, or any other topic that is beneficial to rank and file employees (e.g., Great Ideas, etc.) This session is not a grievance session. For grievances or other issues, a hotline exists to reach the auditor general, and is directly reported to the Board.

<u>Findings:</u>
None

<u>Comments:</u>
None

<u>Recommendations:</u>
None

2017 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SANTA CLARA VALLEY TRANSPORTATION AUTHORITY (VTA)

Checklist No.	**2**	**Element**	**System Safety Program Plan: Goals and Objectives**
Date of Audit	November 7, 2017	**Department(s)**	VTA Executive Management
Auditors/ Inspectors	Daren Gilbert Stephen Artus Mike Borer Rupa Shitole	**Persons Contacted**	Ms. Nuria Fernandez, General Manager/CEO Inez Evans, Chief Operating Officer Rufus Francis, Director System Safety and Compliance Angelique Gaeta, Chief of Staff Edna Pampy, Principal Safety Auditor (Observer)

REFERENCE CRITERIA

1. CPUC General Order 164-D
2. VTA System Safety Program Plan (SSPP) version 13 dated February 2015
3. VTA System Safety Program Plan (SSPP) version 14 dated February 2016

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

System Safety Program Plan: Goals and Objectives

Interview VTA Executive Management and review appropriate records to:

1. Determine whether VTA is making significant progress towards the ongoing goals and objectives identified in SSPP.
2. Obtain examples of how goals are evaluated (metrics and measures) and review documentation used to track VTA activities to meet the goals and objectives. For example, if VTA set a goal of reducing incidents by 10%, has this been achieved? How is this metric tracked and reported?
3. Determine how safety performance is reported to the General Manager (GM/CEO) and Chief Operating Officer (COO) or other executive management (i.e., monthly or annual safety reports, quarterly viewgraph presentations, etc.).
4. Make a determination regarding the adequacy of the safety information provided to the GM. Is the GM receiving sufficient information to ensure VTA is meeting its safety goals and objectives? Are rule violations and other key safety metrics being tracked and reported to the COO?
5. Determine whether the stated goals and objectives should be revised.

6. Determine whether management responsibilities are adequately identified for the goals and objectives.

FINDINGS AND RECOMMENDATIONS

Activities: CPUC interviewed VTA GM and her supporting staff and noted the following:

1. VTA meeting goals and objectives by performance measures identified in SSPP and trying to reduce 10% of incidents. Toward Zero incidents is where the GM starts and looks at trends by tracking accidents and incidents. There is an incident accident task force that comes together to discuss if anything different can be done. Rail Safety and Security Review Board (RSSRB) reviews the accidents on a monthly basis. Management, rank and file employees get together after an accident to review details and take corrective action if required.
2. Refer to #1
3. RSSRB monthly meetings and Board meetings present reports that capture the safety performance.
4. Monthly graphs are posted in the GM office and conference rooms. All violations are reported to COO.
5. VTA has adequate goals and objectives per the SSPP.
6. VTA management responsibility identified is adequate for the stated goals and objectives.

Findings:
None

Comments:
None

Recommendations:
None

2017 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SANTA CLARA VALLEY TRANSPORTATION AUTHORITY (VTA)

Checklist No.	**3**	**Element**	**Overview of Management Structure**
Date of Audit	November 7, 2017	**Department(s)**	System Safety and Compliance Department
Auditors/ Inspectors	Daren Gilbert Stephen Artus Mike Borer Rupa Shitole	**Persons Contacted**	Rufus Francis, Director System Safety and Compliance Denise Patrick, Safety Manager Mike Brill, System Safety Supervisor Edna Pampy, Principal Safety Auditor (Observer)

REFERENCE CRITERIA

1. CPUC General Order 164-D
2. VTA System Safety Program Plan (SSPP) version 13 dated February 2015
3. VTA System Safety Program Plan (SSPP) version 14 dated February 2016

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Overview of Executive Management Structure

Interview VTA Management and review appropriate records to:

1. Discuss VTA's process for integrating safety into VTA operations, maintenance, and ongoing other project activities.
2. Solicit opinions regarding the effectiveness of the organization and request a few examples of how this organization has worked to resolve identified safety issues.
3. Identify any specific deficiencies in the safety program due to limitations in personnel or resources. For example, discuss any difficulties in maintaining schedules for SSPP updates, completing Internal Safety and Security Audits, or performing Accident/Incident Investigations.
4. Review Joint Union/Management Safety Committee Meeting agendas and minutes from the past twelve months to verify that the meetings were held according to the requirements in SSPP Element 5 (Safety Boards and Committees).
5. Does the Safety and Compliance Department have personnel resources allocated to support interdepartmental coordination on safety issues and concerns?

6. Have VTA's Safety and Compliance Department's personnel and resources been cut or increased disproportionately with VTA's overall budget over the last three (3) years?

FINDINGS AND RECOMMENDATIONS

Activities: CPUC interviewed VTA representatives and noted the following:

1. Rail Safety and Security Review Board (RSSRB) meeting has all departments present and involvement will all departments happens at this meeting. VTA and Union meetings (SEIU and ATU) are held separately and safety, security, operations are involved in this meeting. Employee Forums are conducted and headed by COO.
2. VTA discussed a few examples, including Master controller stiffness (spring replacement); RWP work zone reflectorized signs; Sleep Apnea presentation; SMS awareness for VTA employees and Executive Management (Lunch & Learn); Fencing project; ROAR, CTA, APTA Safety (Bus & Rail) meetings; and Hazard management program was discussed briefly.
3. Safety department had increased in staffing and therefore all safety programs have been delivered in a timely manner (e.g., updating the SSPP, conducting the audits, and accident investigations).
4. Staff reviewed a few Joint Union/Management Safety Committee Meetings for 2017 to verify the meetings are routinely held and agendas and minutes are maintained in accordance with SSPP element 5.
5. VTA Safety and Compliance are involved in management and other meetings regarding operational or safety issues, and so safety concerns are discussed accordingly with Safety Department personnel, depending upon the issues raised or the specific project needs.
6. Refer to #3

Findings:
None

Comments:
None

Recommendations:
None

2017 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SANTA CLARA VALLEY TRANSPORTATION AUTHORITY (VTA)

Checklist No.	**4**	**Element**	**System Safety Program Plan: Control and Update Procedure**
Date of Audit	November 7, 2017	**Department(s)**	System Safety and Compliance Department
Auditors/ Inspectors	Daren Gilbert Stephen Artus Mike Borer Rupa Shitole	**Persons Contacted**	Rufus Francis, Director System Safety and Compliance Denise Patrick, Safety Manager Mike Brill, System Safety Supervisor Edna Pampy, Principal Safety Auditor (Observer)

REFERENCE CRITERIA

1. CPUC General Order 164-D
2. VTA System Safety Program Plan (SSPP) version 13 dated February 2015
3. VTA System Safety Program Plan (SSPP) version 14 dated February 2016

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

System Safety Program Plan: Control and Update Procedure
Interview VTA System Safety and Compliance Department and review appropriate records to:

1. Ensure that Safety and Compliance Department understands and is implementing the procedure requirements in SSPP Element 6.
2. Verify that the required annual SSPP review process is being implemented according to the approved process specified in the SSPP, Element 6. Review past correspondence and records for the last 3 years.
3. Review responsibility for SSPP reviews and comments, and verify SSPP reviews and changes progress according to internal timeframes, are comprehensive in scope, and are signed-off by the designated staff.

FINDINGS AND RECOMMENDATIONS

Activities: CPUC interviewed VTA representatives and noted the following:

1. Yes, VTA Safety and Compliance Department reviews the SSPP on an annual basis. The current version is 14 dated February 2016 and still in effect.

2. VTA letter dated February 6, 2015 was reviewed. CPUC approved letter for SSPP 2015 was reviewed. VTA letter dated February 19, 2016 was reviewed. CPUC approved letter for SSPP 2016 was reviewed. VTA SSPP 2017 is in progress.
3. VTA Rail Safety and Security Review Board (RSSRB) meeting members are copied on any SSPP updates. VTA shared some documents showing how internally the SSPP review comments are documented and implemented into the final draft. The final draft SSPP version is presented to the RSSRB members for review and approval. Further this approved SSPP document is then circulated for VTA Executive Management review and approval signatures.

Findings:
None

Comments:

1. The 2017 SSPP was rejected by the CPUC and VTA is working on updating the SSPP per CPUC comments and will be resubmitted for CPUC review and approval soon.

Recommendations:
None

2017 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SANTA CLARA VALLEY TRANSPORTATION AUTHORITY (VTA)

Checklist No.	**5**	**Element**	**System Safety Program Plan: Implementation Activities and Responsibilities**
Date of Audit	November 7, 2017	**Department(s)**	System Safety and Compliance Department
Auditors/ Inspectors	Daren Gilbert Stephen Artus Mike Borer Rupa Shitole	**Persons Contacted**	Rufus Francis, Director System Safety and Compliance Denise Patrick, Safety Manager Mike Brill, System Safety Supervisor Edna Pampy, Principal Safety Auditor (Observer)

REFERENCE CRITERIA

1. CPUC General Order 164-D
2. VTA System Safety Program Plan (SSPP) version 13 dated February 2015
3. VTA System Safety Program Plan (SSPP) version 14 dated February 2016

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

System Safety Program Plan: Implementation Activities and Responsibilities
Interview VTA System Safety and Compliance Department and review appropriate records to:

1. Verify each manager, department, and contractor is charged with responsibility and accountability for SSPP implementation, enforcement, and effectiveness.
2. Identify any challenges each manager, department, and contractor has in performing tasks relating to the SSPP or general safety.
3. Verify management accountability for the performance of safety-related activities, and, if serious or potentially serious deficiencies are found, expand the review to include additional and/or related activities.
4. Select, at random, at least 3 activities performed by the safety function and 3 activities performed by other VTA departments, and collect and review documents.

FINDINGS AND RECOMMENDATIONS

Activities: CPUC interviewed VTA representatives and noted the following:

1. VTA shared with CPUC a boiler plate contract document that shows the SSPP requirements and responsibility for enforcement and effectiveness is implemented in ongoing projects. The VTA SSPP has executive management signatures as required.
2. All VTA contractors and employees have to take the Roadway Worker Program (RWP) training. There are various means of performing RWP safety and security compliance checks.
3. VTA Management is immediately involved in the review when there is a serious deficiencies found in any activity related to the VTA system. Corrective Action is taken as needed.
4. Safety along with other departments conducts RWP compliance checks. Safety conducts all accident investigation, safety audits, and field checks as required per the SSPP. Operations ride checks are conducted by Operations Control Center and Technical Training department.

Findings:
None

Comments:
None

Recommendations:
None

2017 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SANTA CLARA VALLEY TRANSPORTATION AUTHORITY (VTA)

Checklist No.	**6**	**Element**	**Hazard Management Process**
Date of Audit	November 13, 2017	**Department(s)**	System Safety and Compliance Department Transportation Operations Department Environmental, Health and Safety (EH&S)
Auditors/ Inspectors	Claudia Lam	**Persons Contacted**	Susan Lucero, Transit Safety Officer Paul Megia, Transit Division Supervisor Lyndsey Fuji, EH&S Specialist Denise Patrick, Safety Manager

REFERENCE CRITERIA

1. CPUC General Order 164-D
2. VTA System Safety Program Plan (SSPP) version 13 dated February 2015
3. VTA System Safety Program Plan (SSPP) version 14 dated February 2016
4. AS-RM-PR-4160 version 1 dated 3/12/ 2014 (Hazard Identification and Reporting Risk Assessment, Mitigation and Management)
5. AS-RM-PR-4160 version 2 dated 2/1/ 2017 (Hazard Identification and Reporting Risk Assessment, Mitigation and Management)
6. Injury and Illness Prevention Program (IIPP) versions dated 2015 and/or 2016
7. VTA Industry Safe (IS) Program (database)

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Hazard Management Process

Interview VTA representatives and review appropriate records to determine whether:

1. VTA is identifying hazards through the sources described in the SSPP and AS-RM-PR-4160. Sources may include, but are not limited to:
   - Reports and complaints from passengers, field or management personnel;
   - Data mining of VTA control center logs and maintenance systems;
   - Monitoring of special orders and speed restrictions;
   - Reports from operators and supervisors;
   - Review of Unusual Occurrence Reports;
   - Safety statistics reports;
   - Annual internal safety audits;
   - Facility or Equipment inspections;
   - Rules Compliance Program, including results from efficiency testing;

- Results from CPUC Triennial Reviews;
- Results from accident investigations and trend analysis;

2. The System Safety and Compliance Department maintains a mechanism to capture and track identified hazards through analysis and resolution.
3. The Safety Manager and or the responsible person(s) are reviewing ongoing operational hazards to assess severity, and reporting unacceptable hazards to CPUC as specified by the SSPP and AS-RM-PR-4160.
4. VTA has a specified process for reporting hazard resolution activities to CPUC as required by General Order 164-D, Sections 6e and 6f.
5. Identified hazards are being evaluated according to the methods established in the SSPP and AS-RM-PR-4160.
6. Corrective actions are developed to address identified hazards, and identify the individual or department responsible for implementation and a schedule for completion.
7. The System Safety and Compliance Department follows up on outstanding corrective actions to mitigate or resolve hazards.
8. Review records related to past 3 years to:
   a. Ensure that the CPUC is being notified of identified hazards as specified in the SSPP.
   b. Verify that the appropriate entities are performing hazard evaluation/categorization activities (Safety Committee meeting, etc.)
   c. Verify that the Safety and Compliance Department follows-up
9. Discuss TCAP 2016030001 status (2014 Triennial Review Recommendation)

FINDINGS AND RECOMMENDATIONS

Activities: Staff interviewed Transit Safety Officer VTA regarding the Hazard Management Process and reviewed relevant documents to determine if VTA is in compliance with its Hazard Management Process in its SSPP and AS-RM-PR-4160.

1. VTA identifies hazards through the sources stated in its SSPP and AS-RM-PR-4160. VTA provided staff supporting documents to demonstrate how the hazards are identified through the sources.
2. VTA's Safety Department uses Industry Safe (IS) Program to track the identified hazards. VTA staff showed CPUC staff how the hazard data are tracked and analyzed in IS. In addition, Safety department also has a separate CAPs Matrix to track all CAPS from all incidents and hazards.
3. Safety department has a designated staff to review ongoing operational hazards through Unusual Occurrence Report. Also, VTA's quarterly Safety Procedure Rules Adherence Testing (SPRAT) tests and trains the operators based on the 23 testing scenarios and if any operational hazards are identified, they will be shared with Safety Department.

4. VTA uses its own Form R for reporting hazard resolution and accidents to CPUC. After this triennial review, VTA plans to start using the web form provided by CPUC to replace Form R for reporting. The Superintendents are responsible for initial hazard's analysis and reporting hazards and Superintendents will also create IS records for entries and notifies other corresponding departments that hazard record has been created.
5. VTA uses IS Program to analyze hazard by assigning hazard probability and hazard severity (Mil. Standard 882 E); however VTA has not yet fully implemented them for analysis. VTA is still working on implementing Hazard Risk Index such as 1A, 2B, 3D...etc. VTA will follow up with its consultant when the implementation of Hazard Risk Index will be done.
6. The Rail System Safety Review Board (RSSRB), Fire Life Safety Committee, and SEIU, and ATU Joint Meeting meets monthly to discuss the hazards, corrective action items and track all corrective actions until closure occurs. Safety department uses IS Program and a separate CAPs spreadsheet to track all the open items/CAPs of the identified hazards. The Spreadsheet shows the description of hazard identified, Responsible Staff, Status, and Schedule for completion.
7. According to VTA Safety Officer, VTA has reported all identified hazards to CPUC. VTA uses two forms for reporting hazards. A new form developed for all VTA employees and the other form is for the union specifically. VTA plans to train all superintendents on the Mil Standards and IS Program; however, VTA is waiting for CPUC's approval for its new SSPP before implementing any training program.
8. Staff discussed TCAP 2016030001 status (2014 Triennial Review Recommendation) with the Safety Manager and found that VTA has partially implemented the program. (See #5 above).

Findings:

1. Staff noticed from the above activities that VTA has developed Industry Safe (IS) Program to track and analyze identified hazards. However, VTA has not fully implemented the hazard analysis portion using IS Program such as implementing Hazard Risk Index.

Comments:

VTA Safety Department has planned for future training class to ensure all Superintendents and or designated staff are knowledgeable with IS and Mil. Standard 882E. However, VTA is waiting for the approval of the revised SSPP from CPUC before implementing the training program.

Recommendations:

1. VTA should fully implement the hazard analysis for the identified hazards as stated in its SSPP and AS-RM-4160.

2017 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SANTA CLARA VALLEY TRANSPORTATION AUTHORITY (VTA)

Checklist No.	7	Element	System Modification
Date of Audit	November 15, 2017	**Department(s)**	Engineering and Transportation Program Delivery (ETPD) Operations Maintenance Engineering Department System Safety and Compliance Department
Auditors/ Inspectors	Michael Warren Joey Bigornia	**Persons Contacted**	Kenneth Ronsse, Deputy Director, ETPD Adolf Daaboul, Sr. Transportation Engineer Edna Pampy, Principal Safety Auditor Athar Taha, Assistant Transportation Engineer Antonio Tovar, Transit Safety Officer

REFERENCE CRITERIA

1. CPUC General Order 164-D
2. VTA System Safety Program Plan (SSPP) version 13 dated February 2015
3. VTA System Safety Program Plan (SSPP) version 14 dated February 2016
4. Light Rail Transit Design Criteria Manual
5. VTA Light Rail Safety Certification Plan
6. MTN-PR-1001 Light Rail Configuration Management Program version 2 dated 1/20/2011
7. EY000913 Guidelines for completing record drawings
8. Safety and Security Certification, Design and Construction, Document No. EC-CO-WI-0006
9. Procedure for archiving of Rail System Safety Review Board Documentation

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

System Modification

Interview VTA representatives and review appropriate records for the last 3 years to determine whether:

1. System modification projects addressed safety issues and concerns during all phases of the project with the involvement of other required departments through RSSRB committee
2. The System Safety and Compliance Department is involved in assessing/ensuring safety concerns are addressed in system modifications by identifying their specific activities in

the process such as documentation, participation in testing and inspections and observations performed at work sites.

3. Select three system modification projects implemented at random:
   a. Verify that this process was consistent with SSPP and reference document requirements and included an evaluation of potential hazards the modification could pose to the system.
   b. Verify that these hazards were addressed and included an evaluation of potential hazards arising from the proposed modification. (i.e., emails, meeting minutes, sign-offs, inspection checklists, etc.).
   c. Verify that any changes made as a result of a system modification are now reflected in final as-built drawings for the facility and/or specifications for the vehicle and/or equipment.
   d. Verify that VTA's configuration management process has been followed to address system modification, and no unauthorized modifications were implemented.

FINDINGS AND RECOMMENDATIONS

Activities: Staff interviewed VTA representatives responsible for System Modification and determined the following:

1. All construction projects start with a Project Management Plan. The Hazard Analysis is provided to the Rail System Safety Review Board (RSSRB) for review and approval. A Safety Certification Worksheet for Light Rail Projects is used to check the level of certification the project needs to go through. Projects and system changes are a standing agenda item in the monthly RSSRB meetings.
2. System Safety and Compliance Department participates in all parts of the life of a project, from proposed projects presented to RSSRB for design review, to construction meetings, to activation testing.
3. Staff reviewed following documents:
   - Guadalupe Overhead Catenary System (OCS) Rehab and Replace Project (P-707) dated January 18, 2017 is a replacement of part of the OCS along the Guadalupe Corridor from the intersection of North First Street and Rosemary Street to West San Carlos Street near Guadalupe River Bridge.
   - Guadalupe Corridor Traction Power Substation (TPSS) Replacement, Phase 3 (P-0689) dated September 1, 2016 – replaced existing substations #2, #6 at Bassett Street between 1st and 2nd Street.
   - Replacement of Exhaust Fan Control Relay and Wiring (C#33) dated September 6, 2017 – replaced existing relay and wiring for the exhaust fan control circuit in Traction Power Substation System (TPSS) 1,3,4,5,14,15A, and 17A. Staff verified the change required an update to As-Built Drawings which occurred on August 13, 2017.

a. Engineering Maintenance has written procedures (MTN-PR-1001, v02 dated January 20, 2011). It starts with the Configuration Review Board (CRB) then goes to RSSRB for the 10 day review/approval. Appendix C of MTN-PR-1001, v02 needs to be updated to the new signoff for division restructure. Engineering Construction has written procedure (ET-CO-PR-0001, v01 dated April 20, 2016) which starts with the Configuration Management Form. Project P-707 used a draft/nonofficial version of Configuration Management Form.
b. Engineering Maintenance tracks comments and resolution through email correspondence; these are resolved before the individual will sign off but are not tracked. P-707 and P-0689 were like-for-like rehabs that gave a hazard rating to the whole project. Comments are tracked through a spreadsheet (IFB Review Comments – Responses).
c. P-707 and P-0689 are in construction and design, therefore as-built drawings do not require updating. C#33 as-built drawings have been properly updated.
d. Based on Staff's review, VTA's configuration management process is being followed and no unauthorized modifications have been implemented.

Findings:

1. VTA Project #P0707 – did not have the current version Configuration Management Plan Form (April 20, 2016) used for the final project acknowledgement on final sign-off on January 18, 2017.
2. VTA C#33 Project Configuration Change Request Form for Signature Approval needs to be updated with current form dated 2016 (e.g. Transportation, Vehicle Maintenance, Way Power & Signal, Risk Manager signature lines were removed)

Comments:

1. Engineering Maintenance uses email correspondences to resolve comments/concerns from affected departments. The affected departments have to sign-off on that project before implementation can proceed but the comments/concerns are not tracked in any formal manner. Engineering Maintenance agreed to start tracking these comments in a spreadsheet.

Recommendations:

1. VTA should ensure employees have access and use current approved forms.
2. VTA should update Appendix C of MTN-PR-1001 to reflect current division structure.

2017 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SANTA CLARA VALLEY TRANSPORTATION AUTHORITY (VTA)

Checklist No.	**8**	**Element**	**Safety and Security Certification**
Date of Audit	November 17, 2017	**Department(s)**	Engineering and Transportation Program Delivery (ETPD) Maintenance Engineering Department System Safety and Compliance Department Security Department
Auditors/ Inspectors	Joey Bigornia Mike Warren	**Persons Contacted**	Kenneth Ronsse, Deputy Director, ETPD Athar Taha, Assistant Transportation Engineer Laila Mahroom, SVBX System Safety and Security Manager John Donahue, SVBX LTSS Project Manager Denise Patrick, Safety Manager Michael Brill, System Safety Supervisor Octavio Garcia, Manager of Security Programs Bethany Cramer, Senior Management Analyst Antonio Tovar, Transit Safety Officer Linda Durham

REFERENCE CRITERIA

1. CPUC General Order 164-D
2. VTA System Safety Program Plan (SSPP) version 13 dated February 2015
3. VTA System Safety Program Plan (SSPP) version 14 dated February 2016
4. VTA Light Rail Safety Certification Plan
5. Safety and Security Light Rail Design Criteria dated January 2011
6. Safety and Security Certification Plan for BART VTA Silicon Valley Berryessa Extension (SVBX) Project dated 6/30/2011.
7. VTA Safety Certification Plans (SCPs) for all minor/major projects such as but not limited to:
    a. Mountain View Double Track Project
    b. Tasman Pocket Track

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Safety and Security Certification

Interview the VTA representative(s) involved in the Safety and Security Certification Program and review the records for all minor/major projects to determine whether:

1. A formal SCP has been submitted by VTA and approved by the Commission.
2. Each submitted SCP was consistent with General Order 164-D, the SSPP, and applicable reference documents.
3. There has been effective communication with CPUC staff throughout the lives of current and planned projects, including the Preliminary Engineering Design Phase.
4. All design and construction changes were properly coordinated and addressed in the Safety Certification process.
5. All identified hazards have been eliminated or controlled as required under the SCPs.
6. All certifiable elements for Safety Certified projects during the past three years were identified for the Safety Certification Verification Report and submitted to CPUC in a timely manner, according to the requirements of General Order 164-D.
7. VTA group in charge of the SVBX project follows-up with BART and others as required and have a process in place to mitigate any discrepancies and open items and are tracked in a timely manner.
8. Review documentation to determine if New Starts and major projects undertaken by VTA:
    a. Address safety and security certification management, including organizational authority and responsibilities.
    b. Identify the process used to verify and document conformance with safety and security requirements during design, construction, testing, and operational readiness.
    c. Are overseen and approved by FTA and its Project Management Oversight Consultants (PMOCs).
    d. Is the certification program being administered by the transit agency or a contractor?
    e. Has a certification committee been created?
    f. Has a certifiable items list been created?
    g. Have all designs been reviewed, stamped and sealed by a licensed Professional Engineer?
    h. Are design changes and Non-Conformance Reports (NCRs) analyzed for safety impacts? Have these been thoroughly documented?
    i. Have training programs been updated as necessary and have all employees been trained?
    j. Has a testing program been developed and administered?

k. Is the GM/CEO required to formally sign and certify the project is complete and safe for operations?
l. Conduct interviews with safety department personnel to determine how the department has been involved in the certification of VTA ongoing new projects.
m. Conduct interviews with VTA project staff involved in New Starts and major projects to discuss how safety concerns were addressed and the level of interaction with the Safety Department.

FINDINGS AND RECOMMENDATIONS

Activities:
Staff met with VTA personnel and BART/VTA Silicon Valley Berryessa Extension (SVBX) project personnel responsible for Safety Certification Programs' and determined the following:

1. Staff reviewed documents for the Mountain View Double Track Project – Phase 1 and Phase 2. The Project was split into 2-phases and a Final Safety Certification Report dated December 15, 2015 was issued. VTA sent an approval letter to CPUC's Program Project Supervisor (PPS) dated December 16, 2015 formally transmitting the Final Report for review and approval as required by GO 164-D.
2. Staff reviewed Rail Rehabilitation Phase 6, Crossovers & Interlocking Safety Certification Package (P-0670-C16189F) which is currently in progress. The current binder contains the General Hazards Analysis, Safety Criteria, signature sign-offs and identifies if a full safety certification is required.
3. See #1
4. See #1 Proposed projects are presented to the Rail System Safety Review Board (RSSRB) Committee related to VTA Light Rail Project List and split into projects in Construction Phase/Engineering Phase/Waiting for Funding. RSSRB is updated with checkpoints that could require CPUC involvement. CPUC Staff is encouraged to ask about all projects and attend any witness points. CPUC is involved with Safety Certification/FLSSC meetings from kick-off to the end.
5. See #1 above and #7, #8 below.
6. See #1 above and #7, #8 below.
7. See #1 above and #7, #8 below.
8. Commission Resolution ST-83 approved the SVBX Project Safety and Security Certification Plan (SSCP) on February 15, 2007. BART submitted the formal BART VTA Silicon Valley Rapid Transit Project SSCP on September11, 2006. An amendment dated August 1, 2016 was issued for the SVBX SSCP. The SSCP contains all of the required submittal requirements as required for GO164-C (which was the applicable GO during the PE phase at that time).

SBVX Preliminary Hazards Analysis (PHA) dated September 2006 was issued and later updated with a PHA list identifying all Hazards. The Train Control PHA dated October 29, 2015 was performed by Alstom, approved by Project Manager, and considered closed. The PHA Milpitas Station Matrix Form for Hazard Tracking identifies the hazards, resolution, closure, and review input.

VTA's Certifiable elements letter dated July 2, 2015, formally transmitted the certifiable elements and certificates of Conformance to CPUC for review and comments. These same documents will be included in the Final SCVR submittal to the CPUC for overall project review and approval.

a. Staff reviewed Safety and Security Management Plan (SSMP) dated August 21, 2015. The SSMP and SSCP identify VTA's responsibilities.
b. See (a) above.
c. FTA Quarterly meeting minutes track the project progress and Staff reviewed minutes dated September 6, 2017.
d. The SVBX project is under VTA's administration.
e. SSRC meetings track all project safety issues.
f. Design stamped/signed – Fremont Guideway Line, Track, Station, & System Unit 005 (dated December 13, 2015) and Milpitas Station (dated December 15) were all stamped by licensed Professional Engineer.
g. The Silicon Valley Berryessa Extension Project design conformance checklist identifies all certifiable elements. Staff reviewed Contract C700 Safety and Security Certification Checklist dated November 1, 2012 based upon safety certification.
h. BART reports the only Non-Conformance Reports (NCR) for the SVBX are BART Facilities Station Architecture Passenger Station dated April 22, 2017 – and Trench Walls out of tolerance – dated October 22, 2015.

   Bay Area Rapid Transit (BART) design criteria are used for safety and security on the SVBX. The design build contains the BART Facilities Standards (BFS). Staff reviewed documents dated February 14, 2006 and November 3, 2009 (Approach Lighting for Fixed Signals) which showed the BFS requests were properly approved, documented etc. Preliminary Engineering was performed by VTA and any proposed request for variance is also reviewed. Once the variance is issued a design change request prescriptive form is issued. BART provided documents dated May 13, 2013 and October 18, 2013, which showed area requested for approvals. If a request is rejected as verified in May 13, 2013 documented, it is properly noted.

   VTA reports a formal Commission Resolution approved a GO95 fence variance approved in the City of Milpitas 2015.

Staff further reviewed the following documentation for discrepancies: Open Standing item as Tracking Log Safety/Security Open Items/Issues on the SSRC – dated June 13, 2013. The SVBX Safety and Security Program Monthly Reports (dated September 2017) Safety and Security Action Log, identifies and tracks all discrepancies (functional area, issue, category, task, notes) and issued accordingly.

i. Training Programs – matrix identifies safety related items to be addressed. SSMP identifies the safety critical positions, course title name, re-certification name, and course numbers.
j. The testing program is being developed and will be implemented as the project approaches integrated testing.
k. VTA SVBX Project Director, VTA GM, and VTA Safety and Security, BART police Chief, BART Chief Safety Officer, BART General Manager - Operations, and BART General Manager are required to formally accept the SVBX project.
l. VTA and BART Safety and Security Departments are involved with the SVBX project through the Fire Life Safety and Security Committee (FLSSC) and Safety and Security Review Committee (SSRC) Meetings.
CPUC staff representatives to BART and VTA jointly attended meetings as documented in FLSC quarterly meeting minutes dated September 29, 2004, October 20, 2004, November 3, 2004, February 15, 2005, February 13, 2007, and September 21, 2017.
VTA's SSRC meetings monthly minutes dated June 6, 2013, August 14, 2017, January 29, 2013, August 24, 2017 documents the project progress, safety issues, etc. The meetings were attended by BART's Liaison, BART Safety, Contractors, Security, etc.
m. See above.

8. Staff reviewed the following documentation for this section P-0670-C16189F: Rail Rehab Phase 6, Crossovers & Interlockings: Safety Certification Package Mountain View –Phase 1: Safety Certification Package:

a. All VTA major projects require a Project Management Plan (PMP) that is generated by the Project Manager. The PMP tracks safety certification items, hazard analysis, configuration management stakeholders.
b. A safety certifications items checklist is established to track design and construction conformances. The Rail Activation Test Program is created for integration testing. Test procedures are reviewed and approved by all stakeholders.
c. VTA has no FTA projects in process at this time.

d. VTA Safety Department certified both the Mountain View Double Track Project and Tasman Drive Pocket Track Project.
e. The RSSRB is VTA's Rail System Safety Review Board Committee for in-house projects.
f. A VTA Light Rail Safety and Security Criteria Master Checklist exists.
g. Staff verified the designs have been stamped by a licensed Professional Engineer.
h. 30/60/90/final designs are distributed to stakeholders. Comments are received, reviewed, and must be addressed before proceeding to the Construction Request Form (CRF). The CRF which is signed by System Safety as a representative of RSSRB.
i. Training has been signed off for most employees, some left outstanding for various reasons. One employee that was identified during safety certification as needing training never received their training. Though per VTA's responses on November 27, 2017 and December 1, 2017 state the employee was promoted in March 2015 and no longer required to have the training, none the less the employee made it onto the list of employees needing training that was developed at safety certification in December 2015 with no physical documentation that would remove the employee from the training requirement.
j. See above
k. A testing program been developed and administered.
l. Safety Department participates in RSSRB, Rail Activation, and Construction meetings.
m. Safety Department notifies the Project Manager of safety concerns which are addressed directly or included as an Agenda Item for discussion. Communication occurs through meetings, emails, and or VTA's intranet ("the hub").

Findings:

None

Comments:

1. One WPS employee was never trained per safety certification requirement. VTA should ensure the required employee(s) are trained and if no training was provided to a particular individual then it should be documented properly.

Recommendations:

None.

2017 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SANTA CLARA VALLEY TRANSPORTATION AUTHORITY (VTA)

Checklist No.	**9**	**Element**	**Safety Data Collection and Analysis**
Date of Audit	November 14, 2017	**Department(s)**	Risk Management Department System Safety and Compliance Maintenance Engineering Department Light Rail Technical Training Department
Auditors/ Inspectors	Claudia Lam Howard Huie	**Persons Contacted**	Bruce Turner, Transit Safety Officer Diego Carrillo, LRTT Supervisor Manjit Khalsa, Sr. Systems Engineer Rachelle Tagud, Claims Analyst Peter Lim, Risk Supervisor Susan Lucero, Transit Safety Officer

REFERENCE CRITERIA

1. CPUC General Order 164-D
2. VTA System Safety Program Plan (SSPP) version 13 dated February 2015
3. VTA System Safety Program Plan (SSPP) version 14 dated February 2016

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Safety Data Collection and Analysis

Interview the VTA representative(s) responsible for safety data acquisition and analysis, and review the safety data acquisition and analysis program requirements to determine whether:

1. The data collected includes, at minimum: information concerning VTA accident and incidents, employee performance failures, equipment failures, and procedural deficiencies.
2. The safety data is supplied by, and collected from, all departments, including Operations, Risk Management, and Maintenance, as appropriate.
3. The safety data collected is analyzed and incorporated into VTA's Hazard Identification and Resolution Process as necessary.
4. The safety data and analyses are made available to VTA departments for use in planning their safety-related activities.
5. Periodic reporting regarding the results of the safety data analysis is provided to the VTA Executive Management as appropriate.
6. Verify that the safety data sources identified in the SSPP are being used, and data analysis and distribution are being implemented as described in the SSPP.
7. Interview VTA System Safety and Compliance:

a. Ask the representative(s) to explain how they receive safety-related information from other departments, including the operations and maintenance departments.
b. Ask the representative(s) to provide examples of how information received from the Operations and Maintenance departments was used to support safety data collection and analysis activities.
c. Ask the representative(s) to explain how they collect information on derailments and rules violations on the VTA Rail System.
d. Ask the representative(s) how it ensures the quality and integrity of collected safety data.
e. Ask the representative(s) to explain how VTA reports data to FTA's National Transit Database (NTD).

FINDINGS AND RECOMMENDATIONS

Activities:

Staff interviewed Risk Management Department staff and reviewed relevant program documentation and determined the following:

1. VTA collects and tracks safety data using Industry Safe (IS) Program. All rail accidents are reported to OCC and relevant departments are dispatched for response. The incident is entered into Industry Safe by a field supervisor and an Unusual Occurrence Report (UOR) is created initially by OCC. Additionally Operator Occurrence Report (Operator Statement of what he/she remember – approximately 5 to 7 pages) is submitted to the Superintendent or Supervisor, whoever is available. If field supervisor is responding to the incident, he/she will enter the report into Industry Safe. Performance Failures – CCTV is reviewed to determine if it was operator error. UOR is reviewed for additional data and analysis. In addition, VTA conducts monthly Active Right of Way Meetings and all parties affected at Guadalupe are invited to attend. Train operators (Union Safety Rep) are invited as well to attend and they provide input as to problems on the system and the Committee looks into how to resolve the problems. When a Train operator requests Worker's Comp claims the worker is required to fill out forms as per VTA's Injury & Illness Prevention Program (IIPP). Yard, maintenance, wayside personnel share safety data such as derailments and rules violations in the VTA's yard through email and monthly Rail System Safety Review Board (RSSRB)/Fire Life Safety Committee (FLSC) meetings.
2. VTA provided 521 Safety Committee Meeting agenda dated August 16, 2017 for review. VTA/ATU Local 265 Joint Safety Committee Meeting dated September 19, 2017. Rail System Safety Review Board (RSSRB) Agenda No. 388, dated November 1, 2017. Agendas showed the discussion/involvement from all departments including Operations, Risk Management, and Maintenance to share safety data supplied.
3. VTA staff showed staff how IS database captures and tracks the safety data; IS Program has a feature that VTA staff can use to analyze similar to Mil. Standard 882E

by assigning the Risk Probability and Severity. However, the IS program is not fully implemented such as assigning the Hazard Risk Index such as 1A, 2B, 3D, etc. VTA will follow up with its consultant when the implementation of Hazard Risk Index will be done. This is a recommendation issued in checklist 6 (Hazard Management Process).

4. VTA has monthly Near Miss Report and Lost Control Report sent to Executive Management and RSSRB for review. VTA holds monthly RSSRB/Fire Life Safety Committee, ATU/SEIU joint committee meetings to discuss safety incidents and safety data, and these are made available to VTA departments for use in planning their safety related activities.
5. All reports distributed at RSSRB also go to Executive Management for review. Also, Risk Management provides Quarterly Liability Claims for Light Rail to the RSSRB for review that includes liability claims and Worker's Compensation claims. These reports are also available for senior and executive manager review.
6. See #3 for detail.
7. VTA collects safety related information from other departments such as operations and maintenance through Monthly Rail Reliability Meeting, RSSRB/Fire Life Safety Committee, ATU/SEIU joint committee meetings. VTA has provided CPUC staff a few meeting agendas and meeting minutes. Also, VTA uses Salesforce calls for employees to report any rules violations or derailment. VTA's quarterly Safety Procedure Rules Adherence Testing (SPRAT) tests and trains the operators based on the 23 testing scenarios and if any operational hazards are identified, they will be shared with Safety Department. SPRAT reviews helps supervisor to determine the cause and disciplinary actions such as retraining and these are tracked through a register and entered into their files.

   VTA has a few designated staff to perform peer review of the video, reports, and data. In addition, VTA performs Internal Safety Audit to ensure the quality and integrity of collected safety data. VTA has two designated staff, one for safety and one for security, responsible for incident/accident reporting to CPUC, and NTD for Safety and Security data.

Findings:
None.

Comments:
None.

Recommendations:
None.

2017 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SANTA CLARA VALLEY TRANSPORTATION AUTHORITY (VTA)

Checklist No.	**10**	**Element**	**Accident/Incident Investigations**
Date of Audit	November 13, 2017	**Department(s)**	Transportation Operations Department System Safety and Compliance Department
Auditors/ Inspectors	Claudia Lam Michael Warren	**Persons Contacted**	Bruce Turner, Transit Safety Officer Captain David Lera, Santa Clara County Office of the Sheriff Octavio Garcia, Manager of Security Programs Naunihal Singh, Service Mngt. Assistant Superintendent Paul Megia, Transit Division Supervisor Denise Patrick, Safety Manager Antonio Tovar, Transit Safety Officer

REFERENCE CRITERIA

1. Code of Federal Regulations, Title 49 Part 659.33 – Accident notification
2. Code of Federal Regulations, Title 49 Part 659.35 – Investigations
3. Code of Federal Regulations, Title 49 Part 659.37 – Corrective Action Plans
4. CPUC General Order 164-D
5. CPUC General Order 172
6. VTA System Safety Program Plan (SSPP) version 13 dated February 2015
7. VTA System Safety Program Plan (SSPP) version 14 dated February 2016
8. VTA SOP 530 (LRA-PR-0530), Light Rail Accident/Incident Investigation/ Reporting Procedures version 11 dated 2/6/2013
9. VTA SOP 531, ICP_FRA Reporting Requirements Vasona Corridor version 3 dated 2/6/2013

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Accident/Incident Investigations

Interview the VTA representative(s) responsible, and randomly select at least two CPUC-reportable accidents and/or incidents for each year in the past three years involving an injury or fatality to determine whether:

1. All accidents and incidents were reported to CPUC according to the requirements in General Order 164-D.

2. All accidents and incidents were reported within two hours of occurrence, as required by General Order 164-D, Sections 7.1 and 7.2.
3. All immediately reportable accident or incident notifications to CPUC contained all the information required by General Order 164-D, Section 7.3.
4. All accidents and incidents were investigated in compliance with the requirements of General Order 164-D, Section 8, and the AIIP.
5. Verify if FRA (on joint corridor), NTSB, and NTD notifications are made as applicable depending on the incident reporting threshold. Review some records.
6. A final report was submitted for each accident or incident according to the requirements in General Order 164-D.
7. Each final report includes identification of:
    a. All evidence processed during the investigation;
    b. Findings of the most probable cause(s);
    c. Findings of contributory cause(s);
    d. Corrective Action Plans to address the identified causes with the goal of minimizing the probability of recurrence;
    e. A schedule for implementing the CAPs, including completion date or plan for monitoring progress on an on-going basis.

FINDINGS AND RECOMMENDATIONS

Activities: Staff interviewed VTA and conducted the following records review related to VTA Accident/Incident Investigation for the previous 3 years.

Staff reviewed the following accident reports:

- September 5, 2015 Fruitdale Crossing
    - Final report issued December 29, 2015
    - No 30 day extension letters were sent
- February 17, 2016 Tasman Dr & Champion Ct
    - Final report issued April 5, 2016
- August 24, 2016 Capitol Ave & Berryessa Road
    - Final report issued October 24, 2016
- January 9, 2017 Hwy 880 & Great Mall Pkwy
    - Final Report issued May 7, 2017

Staff reviewed the following accidents for 30-day extensions:

- April 18, 2016 Capitol Ave at Gimelli, San Jose, CA –extension letter dated June 9, 2016
- April 20, 2015 Parkmoor Ave/Race Street, San Jose, CA – extension letter dated June 17, 2016

- May 5, 2016 North 1st Street & George, San Jose, CA – extension letter dated July 8, 2016
- July 29, 2017 Parkmoor Ave Crossing, San Jose, CA – extension letter dated Sep 29, 2017

VTA uses Form R notifications to report accidents and they were within 2-hours as required by GO 164-D, Section 7.1 & 7.2. Prior to March 2017, post-incident gated crossing inspections were not consistent and at departments discretion. VTA uses the National Response Center (NRC) hotline to report the applicable accidents. NRC is used to report/update NTD, FRA, NTSB databases. Coroner reports can sometimes come in late due to crime lab taking a while to get the results. All the accidents/incidents are tracked in Industry Safe database and VTA System Safety and Compliance Department has a different excel sheet to track the CAPs.

1. Accidents have been reported to CPUC in accordance with GO-164D.
2. Accidents have been reported to CPUC within the 2-hour threshold.
3. Accidents reported to CPUC included all appropriate information.
4. Accidents have been investigated in compliance with VTA's Accident Investigation Procedures.
5. FRA (on joint corridor), NTSB, and NTD notifications were made as applicable.
6. A final report has been submitted for accidents.
7. Final accident reports identify evidence processed, probable cause(s), and corrective actions when applicable.

Findings:
None.

Comments:

1. The September 5, 2015 Fruitdale Crossing accident had a final report submitted on December 29, 2015 but no 30-day extension letters were submitted as required by GO 164-D. VTA should ensure 30-day extension letter(s) are submitted in a timely manner.

Recommendations:
None.

2017 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SANTA CLARA VALLEY TRANSPORTATION AUTHORITY (VTA)

Checklist No.	**11**	**Element**	**Emergency Management Program**
Date of Audit	November 15, 2017	**Department(s)**	Security Department System Safety and Compliance Department Light Rail Technical Training Department
Auditors/ Inspectors	Howard Huie Joey Bigornia Rupa Shitole	**Persons Contacted**	Michael Brill, System Safety Supervisor Diego Carrillo, LRTT Supervisor Octavio Garcia, Manager of Security Programs Vimla Daryani (observer)

REFERENCE CRITERIA

1. Code of Federal Regulations, Title 49 Part 659.23 – System security plan: contents
2. CPUC General Order 164-D
3. VTA System Safety Program Plan (SSPP) version 13 dated February 2015
4. VTA System Safety Program Plan (SSPP) version 14 dated February 2016
5. VTA Emergency Operations and Business Recovery Plan (EOP)

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Emergency Management Program

Conduct the necessary interviews regarding VTA's emergency planning, training, and drill/exercise program and review appropriate records prepared during the last three years to:

1. Solicit an overview of the process for VTA's emergency planning, training, and drill/exercise program and specific examples of coordination with emergency response agencies on emergency planning and drill/exercises
2. Determine the biggest challenges VTA safety department face in coordinating or supporting VTA's emergency planning process.
3. Verify that a drill/exercise schedule has been created and followed. Determine when was the last one performed? Was an after action report developed? Was the after action report used to make changes to VTA's Emergency Operation and Business Recovery Plan (EOP) and/or procedures? If so, have these changes been communicated to VTA personnel?
4. Verify the process through which emergency responders and other outside agencies are involved in the VTA emergency planning.
5. Verify that drill outcomes and evaluations were incorporated into response plans and

procedures as appropriate.

6. Determine if VTA has held periodic Fire Life Safety meetings, emergency response agency familiarization activities have occurred as scheduled and corrective actions have been implemented.
7. VTA emergency response training:
    a. Review training programs to verify they contain training curriculums for emergency response procedures and activities appropriate for each job classification.
    b. Review training programs to verify frequency of employee emergency response training.
    c. Randomly select five (5) employees from the following safety sensitive job classifications and review their emergency response training records to verify who has been trained and that training has been properly documented:
        a. Train Operators
        b. Rail Supervisors
        c. Rail Controllers

FINDINGS AND RECOMMENDATIONS

Activities:
Staff interviewed VTA Safety Specialist responsible for VTA's Emergency Management Program and determined the following:

1. The VTA Emergency Operations Plan and Continuity of Operations Plan, revised January 2014 and VTA EOP/COOP Section 5.8.5, Table 5.1 page 19 describes VTA's emergency planning, training, and drill/exercise program. VTA provided the following Emergency Full Scale Functional Exercises Plans, Table Top Exercises (TTX) Plans, and After Action Reports for staff to review:
    - TSA/I-Step - Suspension and Restoration of Service in Response to an Incident, TTX dated August 11, 2015. After Action Report dated August 11, 2015. No CAPs for VTA. Participants included TSA, VTA, SFMTA, I-Step Contractor, and Amtrak.
    - 2015 MTC Metropolitan Transportation Commission – El Nino Storm Scenario, dated November 6, 2015 and After Action Report dated February 2016. Participants included Alameda Contra Costa Transit, Altamont Corridor Express, Bay Area Rapid Transit, California Governor's Office of Emergency Services, California Department of Transportation District 4, Central Contra Costa Transit Authority, California Highway Patrol, Eastern Contra Costa Transit Authority, Metropolitan Transportation Commission, National Oceanic and Atmospheric Administration, Oakland International Airport,

Pacific Gas and Electricity, San Mateo County Transit, VTA, SF Department of Emergency Management, SFMTA, SFO, SJC, Solano County Transit, and Water Emergency Transportation Authority.

- 2015 Yellow Command – Urban Shield Full Scale Exercise, dated September 11, 2015. Participants: Cal OES Costal Region, Northern California Regional Intelligence Center, California State Threat Assessment Center, FBI, FEMA, County of Alameda, County of Marin, County of Monterey, County of San Benito, County of San Mateo, County of Santa Clara, County of Santa Cruz, County of Sonoma, City and County of SF, City of Oakland, City of Palo Alto, City of San Jose, City of Santa Clara, Metropolitan Transportation Commission, Water Emergency Transportation Authority, Sonoma-Marin Area Rail Transit, Alameda-Contra Costa Transit District, SamTrans/Caltrain, Santa Clara Valley Transportation Authority, Gold Gate Bridge Highway and Transportation District, CHP, PG&E, US Coast Guard, Kaiser Permanente, etc.
- VTA/Santa Clara Valley Water District Tabletop Exercise, dated June 6, 2016. Functional Exercise dated June 8, 2016. After Action Plan dated June 30, 2016. No CAPs for VTA. Participants: Santa Clara Valley Water District Emergency Operations Center, San Jose Water Company, Milpitas Fire Department, San Benito County Office of Emergency Services, City of Gilroy Fire Department, Alameda County Sheriff's Office of Emergency Services, County of Santa Clara Social Services, Freemont Fire Department, Santa Clara Valley Transportation Authority, City of Morgan Hill.
- VTA Super Bowl 50 Service Plan and Super Bowl 50 Transit Operations Playbook, dated January 27, 2016
- Virtual Table Top Exercise (VTTS) Cybersecurity Scenario dated April 15, 2017. Participants: FEMA (hosted), VTA, and Santa Clara County. (This TTX not directly rail related but FYI as VTA participated).
- VTA & BART SVRT Station TTX, dated June 22, 2017. Participants: VTA, BART, and Santa Clara County Bomb Squad. Hot Wash has a CAP is that ensure BART and Santa Clara Sheriff's radios can communicate with each other. Will be tested in the full scale exercise in 2018.
- Metropolitan Transportation Commission 2016 Regional Tabletop Exercise, dated October 11, 2016. After Action Report/Improvement Plan, published December 2016. Participants: United States Coast Guard, Bay Area Urban Area Security Initiative, California Department of Social Services, California Department of Transportation, California Governor's Office of Emergency Services, CHP, Alameda County, Alameda-Contra Costa Transit District, Almont Corridor Express, Amtrak, BART, Central Contra Costa Transit Authority, Eastern Contra Costa Transit Authority, Port of San Francisco, San Francisco Department of Emergency Management, SFMTA, SamTrans, University of California San Francisco Transportation Services, Water

Emergency Transportation Authority, Bay Area Center for Regional Disaster Resilience, and Blue & Gold Fleet.

- Santa Clara County Care and Shelter TTX, dated August 9, 2017. Participants: City of Santa Clara Behavioral Health Services, NASA Ames Research Center, City of Cupertino, City of Campbell, City of Santa Clara, City of San Jose, City of Palo Alto, City of Cupertino, CADRE, Constant Associates, Santa Clara County Parks and Recreation, Santa Clara Office of Supportive Housing, Department of
  Forestry and Fire Protection, City of Gilroy, Santa Clara County Office of Emergency Services, Town of Los Altos Hills, City of Cupertino, Santa Clara County Valley Transit Authority, American Red Cross, City of San Francisco, Santa Clara County Social Services Administration, City of Sunnyvale, and Santa Clara County Public Health Department.
- Santa Clara County Op Area EOC Exercise Plan (ExPlan), dated September 14 and 15, 2017. Participants: Santa Clara County hosted the exercise but has not sent out After Action Report as of to date. VTA does not have a sign in sheet for participants.
- 2017 Metropolitan Transportation Commission (MTC) Functional Exercise, dated October 25, 2017. Participants: MTC hosted the exercise. An After Action Report has not yet been issued by MTC and VTA does not have the sign in sheet of the participants.

2. VTA reports the biggest challenge is internal turnover within the emergency operational center. Scheduling needs to be coordinated during non-revenue services hours.
3. VTA does not set up Emergency Drills at any specific time during the year. VTA performs drills per calendar year. VTA's Safety Department ensures that VTA performs at least one emergency drill per year for the system as per VTA's EOP per table 5.1. VTA participated in the 2017 MTC Functional Exercise on October 25, 2017. The After Action Report has not yet been issued. However there have not been any results from the past emergency exercises in the past three years that prompted a changed in VTA's EOP.
4. VTA provided Fire Life Safety Committee meetings agendas, meeting minutes, and sign in sheets from January 2017 to July 2017, which shows the local first responders attending and discussing emergency matters involving VTA.
5. Staff reviewed various After Action Plans from various drills and did not find any CAPs for VTA. VTA Safety said that no emergency drills in the past three years constituted any SOP or EOP changes. See answer to question 1 above for emergency drills with After Action Reports.
6. See #4 above. The FLSC meetings identify emergency response agency familiarization activities, scheduled and corrective actions (if any) have been implemented.

7. Staff reviewed VTA employee records from each classification and found the following:

a. Train Operators

Badge #	Initial T/O Hire Date as Bus Operator	2016 Recert Date	2017 Recert Date
15007	06/16/2017	New	
13701	10/25/13	11/1/16	11/7/2017
5153	10/29/99	12/28/16	
14075	06/27/14	10/27/16	9/26/17
5591	07/09/07	10/3/16	

b. Field Supervisors

Badge #	Initial Hire Date as Bus Operator	2016 Recert Date	2017 Recert Date
11087	12/30/12	12/26/16	
8562	7/30/98	9/20/16	11/7/17
12436	12/05/10	11/22/16	10/23/17
13615	11/4/16	New	10/12/17
9769	2/11/02	9/22/16	10/2/17

c. Controllers

Badge #	Initial Hire Date as Bus Operator	2016 Recert Date	2017 Recert Date
3279	10/14/91	12/20/16	
13609	10/25/13	11/3/16	10/2/17
9041	7/9/99	12/6/16	11/15/17
2944	11/18/00	12/20/17	
2920	7/29/99	9/22/16	

Comments:

Staff noted there were a few minor recommendations for all the rail transit agencies (RTA) participating in training exercises/drills to address and the auditor had to dig through the After-Action Reports to find. VTA reports they have already addressed the issues; however, there wasn't any record of the corrections since it wasn't directed at VTA. Safety Department had paperwork of some of the corrections on file, but not all since they were all very minor. Staff suggested VTA creates a CAPs Matrix to show minor recommendations from drills were fixed, whether directed at VTA or to all RTAs.

Findings:
None.

Recommendations:
None.

2017 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SANTA CLARA VALLEY TRANSPORTATION AUTHORITY (VTA)

Checklist No.	**12**	**Element**	**Internal Safety Audits/Reviews**
Date of Audit	November 17, 2017	**Department(s)**	System Safety and Compliance Department
Auditors/ Inspectors	Daniel Kwok Howard Huie	**Persons Contacted**	Edna Pampy, Principal Safety Auditor Michael Brill, System Safety Supervisor

REFERENCE CRITERIA

1. CPUC General Order 164-D
2. VTA System Safety Program Plan (SSPP) version 13 dated February 2015
3. VTA System Safety Program Plan (SSPP) version 14 dated February 2016
4. VTA Internal Safety Audit Schedule 2014 - 2016

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Internal Safety Audits/Reviews

Interview the VTA representatives involved in ISSAs, and review appropriate records to:

1. Determine if a three-year internal audit schedule was developed and submitted to CPUC.
2. Verify that all elements of the SSPP were evaluated within the past three years.
3. Verify CPUC was notified 30 days in advance of the scheduled audit via a letter and or an email and a draft checklist was submitted along with it.
4. Verify that each audit lists the involved VTA departments, the safety-related activities addressed, and the reference criteria for the audit.
5. Determine whether the ISSAs adequately address interdepartmental and interagency communication issues, and whether or not VTA has a process for addressing and overcoming non-responsiveness of departments' non-responsiveness and failures to implement audit recommendations.
6. Determine how expertise for auditing specific functions is evaluated, and how personnel are assigned per the SSPP to ensure ISSA quality. An example of a function is signal inspection.
7. Verify that audits have been properly documented and included references for documents, activities reviewed, criteria for evaluation, and notes to support findings and recommendations.

8. Verify that Annual Reports are accompanied by letters from the GM/CEO stating VTA's compliance status with its SSPP and Corrective Action Plans for elements determined not to be in compliance.
9. Verify that Corrective Actions to address findings from the internal safety audit process were scheduled, tracked, and implemented.
10. Review CPUC RTSS Checklists for reviewing and approving VTA's Annual Reports.

FINDINGS AND RECOMMENDATIONS

Activities: Staff interviewed VTA representatives responsible for the Internal Safety Audit (ISA) Program and found the following:

1. Staff verified the VTA ISA schedule was developed and submitted to Staff on February 14, 2014 for audit years 2014, 2015, and 2016; and December 22, 2016 for audit years 2017, 2018, and 2019.
2. Staff verified all elements in the SSPP have been evaluated within 3 years (2014, 2015, and 2016)
3. VTA provided letters for ISA for years 2015 through 2017. Staff was included on Outlook Calendar Notice unless otherwise specified. If no Outlook Calendar notice, a note was provided that the letter to Staff has ISA times and location. All Letters are accompanied with hard copy checklist and date of ISA. Outlook Calendar Notice was attached with a soft copy of checklist.
    a. ISA Element 6, System Safety Program Plan Control and Update Procedure, Outlook Calendar Notice for ISA dated 12/21/15 and Letter to Staff dated November 17, 2015.
    b. ISA Element 13, Internal Safety Audit, Outlook Calendar Notice for ISA dated 11/17/15 and Letter to Staff dated October 16, 2015.
    c. ISA Element 15, System Modification Review/Approval Process, Outlook Calendar Notice for ISA dated July 20, 2015, no letter available for review.
    d. ISA Element 19, Employee Safety Programs, no Outlook Calendar Notice, Letter to Staff dated March 27, 2015.
    e. ISA Element 23, Procurement, no Outlook Calendar Notice, Letter to Staff dated March 27, 2015.
    f. ISA Element 25, Joint Freight Operations, Outlook Calendar notice sent September 30, 2015 for ISA dated October 30, 2015, Letter to Staff dated September 30, 2015.
    g. ISA Element 26, Security, email to Staff informing ISA dated May 11, 2015.
    h. ISA Elements 1&2, Executive Policy Statement Description and Purpose, Outlook Calendar Notice for ISA dated 7/27/2016, Letter to Staff dated June 29, 2016.

i. ISA Elements 3, 4, and 5, Goals & Objectives, and Organizational Structure, email chain between Staff and VTA going back and forth in April 2016. Staff attended as an Observer in ISA. No letter was found and no Outlook Calendar Notice was found. ISA executed June 27, 2016.
j. ISA Element 8 & 17, Accident/Incident Reporting & Interdepartmental/Interagency Coordination, no Outlook Calendar Notice, Letter to Staff dated September 7, 2016.
k. ISA Element 11, Maintenance Audits/Inspections, Outlook Calendar Notice for ISA dated 9/12/2016 and email to invitees including Staff dated August 12, 2016, Letter dated August 12, 2016.
l. ISA Element 14 and 17, Emergency Response Planning and Coordination, no Outlook Calendar notice, Letter to Staff dated January 22, 2016, ISA date February 22, 2016.
m. ISA Element 18, Configuration Management, no Outlook Calendar Notice but email to invitees dated June 23, 2016 for ISA July 27, 2016, Letter to Staff dated June 23, 2016.
n. ISA Element 20, Hazardous Materials Programs/Environmental Management, no Outlook Calendar Notice, Letter to Staff dated February 23, 2016.
o. ISA Element 21, Drug and Alcohol Policy, no Outlook Calendar Notice but email to Staff inviting to ISA dated September 9, 2016, Letter to Staff September 8, 2016.
p. ISA Element 22, Constructor Contractor Operations, no Outlook Calendar Notice but email to invitees dated August 12, 2016, Letter to Staff dated August 12, 2016.
q. ISA Element 6, Hazard Management Process, no Outlook Calendar Notice, Letter to Staff dated February 17, 2017.
r. ISA Element 8, Safety Certification, no Outlook Calendar Notice but Letter to Staff dated January 20, 2017.
s. ISA Element 9, Safety Data Collection & Analysis, no Outlook Calendar Notice, Letter to Staff dated March 28, 2017.
t. ISA Element 13, Rules Compliance: Observation & Enforcement, no Outlook Calendar Notice, Letter to Staff dated March 29, 2017.
u. ISA Element 14, Facilities & Equipment Inspections, no Outlook Calendar Notice, Letter to Staff dated June 30, 2017.
v. ISA Element 15, Maintenance Audits and Inspections, no Outlook Calendar Notice, Letter to Staff dated June 10, 2017.

4. VTA's audit template shows VTA department involved, safety-related activity/element, and reference criteria. Staff verified reports for reference criteria, departments involved, and safety-related activities/element are in the audits for 2014, 2015, and 2016.

5. VTA states the auditor has a high degree of independence, and not providing information requested by auditor or departmental non-responsiveness is not an option. Example shown to Staff (email, dated November 7, 2017) shows outstanding ISA document review for 2017 ISA. Any open corrective action items, including items from ISSAs, are tracked through RSSRB Committee. VTA showed Staff emails between VTA and CPUC regarding ISA CAP follow-up from 2015 and 2016 (there were no CAPs from 2014 ISA).
   Staff also reviewed VTA SSPP Element 17: Interdepartmental/Interagency Coordination. Staff noted that Element 17 was combined and jointly audited with checklists 8, 12, 13, 14, 18, and 20 for the ISAs. From Staff's review, Element 17 was not adequately addressed in ISA checklists: 18, 13, and 20.
6. VTA's Principal Safety Auditor and System Safety, has been with VTA for almost 19 years. Principal Safety Auditor has been with Safety for 2 ½ years. In her previous position as a Senior Management Analyst she has been to many Board Meetings, FLSC meetings, ATU Safety Committee, 521 Safety Committee meetings, etc. and has gotten to know the expertise of various personnel at VTA. The Principal Safety Auditor will choose a person with the expertise who's not directly associated with the department that's being audited. An example is where an auditor was outside of rail, on the bus side (Bus maintenance Manager), came to audit Rail Hazard Management. The Bus Maintenance Manager has familiarization with hazard management. Took a course in Hazard management Virginia Tech. The course was a week at a time, four times a year, over a course of one year. Name of the coarse is Environmental Management Systems Training and Technical Assistance.
7. VTA provided Staff with ISA Reports from 2014, 2015, and 2016 for review. Staff noted that all sections below were properly filled in the reports as noted. Results/Comments, CAPs were properly noted and referenced. Reports include the following:
   a. Introduction
   b. Audit Methodology
   c. Scope of Calendar Year 2014, 2015, and 2016 Internal Safety Audit
   d. VTA Internal Rail Safety Audit Report Calendar Year 2014, 2015, 2016
   e. Audit Results
   f. VTA Internal Tracking Schedule
   g. ISA Checklists - Each Checklists include the following:
      i. Element Number and Title
      ii. Date and Time of Audit
      iii. Auditor(s) Name and Department
      iv. Department Name
      v. Contact Person(s)
      vi. Observer(s)
      vii. Reference Criteria

viii. Element/Characteristics and Method of Verification
ix. Result/Comments
x. Description of Corrective Action Plan
xi. Implementation Schedule Date on Corrective Action Plan
xii. Completion Status (Date and Action Taken to Corrective Noted Items)

8. VTA provided the following: Letter from GM to CPUC Staff: FY 2014 – Letter dated February 6, 2015. Letter from Staff to VTA dated March 2, 2015. FY 2015 – Letter to Staff dated February 19, 2016. Staff to VTA Letter dated February 29, 2016. FY 2016 – Letter to Staff dated January 31, 2017. Staff to VTA Letter dated February 15, 2017.
9. VTA provided the CAPs Matrix from 2016 and 2017 for Staff to review. CAPs Matrix is sent to RSSRB every month for review. CPUC Staff is automatically copied on that email. No CAPs Matrix was available in 2015 as VTA didn't have a system to capture and summarize CAPs. As of 2017, VTA is entering all CAPs into Industry Safe but it isn't fully implemented. ISA CAP Matrix includes the following columns:
    a. RTA
    b. Cap Internal Tracking ID
    c. Date Opened
    d. FTA Category
    e. Identified Action (Section 659.37(b))
    f. SOA Approved (659.37 (c)
    g. Proposed Implementation Date (Section 659.37(b))
    h. Actual Implementation Date (Section 659.37(b))
    i. Individual Responsible Implementation (Section 659.37(b))
    j. CAP Status
    k. Implementation Verified (659.37 (f)(1))
    l. Issues Preventing Resolution (For Open CAPs)
    m. Monthly Caps Status Update
    n. Documents
10. Staff reviewed CPUC RTSS checklists and verified the checklists approving VTA's annual report:
    a. ISA for 2014, RTSS checklist dated 2/13/2015
    b. ISA for 2015, RTSS checklist dated 2/19/2016
    c. ISA for 2016, RTSS checklist dated 2/15/2017

Findings:

1. VTA stated it will jointly audit Element 17, Interdepartmental/Interagency Coordination, with Elements 8, 12, 13, 14, 18, and 20. Element 17 was not jointly audited in Elements 12, 13, and 18.

Comments:

1. No CAPs tracking for Year 2015. However for Years 2016 and 2017, VTA has corrected the issue and has a CAPs Matrix for each year.

Recommendations:

1. VTA should audit stated elements per Internal Safety Audit Schedule submitted to CPUC.

2017 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SANTA CLARA VALLEY TRANSPORTATION AUTHORITY (VTA)

Checklist No.	**13-A**	**Element**	**Rules Compliance: Observation and Enforcement**
Date of Audit	November 15, 2017	**Department(s)**	Service Management Transportation Operations Light Rail Technical Training Light Rail Maintenance Training System Safety and Compliance
Auditors/ Inspectors	Michael Rose Debbie Dziadzio Richard Fernandez	**Contacted**	Janice Broock, Transportation Superintendent Paul Megia, Transit Division Supervisor Denise Patrick, Safety Manager George Sandoval, Operations Mngr., MOW Monte Bjerke, LR Maintenance Instructor Bruce Turner, Transit Safety Officer Abrar Ahmad, Service Mngt. Superintendent Larry Bajwa, Transportation Supervisor Naunihal Singh, Service Mngt. Assistant Superintendent Diego Carrillo, LR Tech Training Supervisor

REFERENCE CRITERIA

1. CPUC General Order 164-D
2. VTA System Safety Program Plan (SSPP) version 13 dated February 2015
3. VTA System Safety Program Plan (SSPP) version 14 dated February 2016
4. VTA Operating Rulebook
5. VTA Standard Operating Procedures
6. VTA Maintenance Procedures

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Rules Compliance: Observation and Enforcement

Interview the appropriate VTA representatives and review appropriate records to:

1. Verify that VTA performs formal observations of Rail Controllers and Operators as specified the SSPP and/or supporting procedures.
2. Verify that VTA performs observation of Maintenance Employees as specified in the SSPP and/or supporting procedures.
3. Review documentation to verify that supervisors are citing operating and maintenance personnel for rule violations.

4. Verify that operations and maintenance employees are evaluated based on their performance during unannounced observations to assess their compliance with safety rules, procedures, and/or practices.
5. Determine whether any accidents/incidents were determined to have resulted from inadequate operations procedures and verify appropriate Corrective Action Plans (CAPs) were implemented in response.
   a. If so, verify what steps were taken to correct these issues (i.e., employee retraining, suspension, dismissal, etc.).
6. Determine how VTA performs efficiency testing of operating and maintenance personnel and verify CAPs are implemented when appropriate
7. Verify the VTA Committee that receives reports from Operations and Maintenance Departments regarding rules compliance assessment and testing. Are hazards identified from the rules compliance process, reported to the Committee, and tracked through the Hazard Management Process?
8. At random, select several operating procedures (4 or 5) and ride the system to verify that these rules are being followed (such as proper BCBs berthing, any speed restrictions, or vehicle inspections before beginning service or end of line, etc.).
9. Review VTA appropriate program documentation, and ensure that the following are addressed:
   a. Medical Monitoring
   b. Fatigue Management
   c. Over-the-Counter Medications
   d. Stress
10. Interview operations and maintenance supervisory staff to determine their familiarity with rules and procedures and how they monitor employee compliance with rules and procedures.
11. Conduct random interviews of operators and mechanics to verify how often they receive training on rules and procedures and how the transit agency monitors their compliance with rules and procedures.
12. Accompany a light rail supervisor personnel during compliance checks and assess how these checks are conducted and ensure that final reporting matches the findings in the field.

FINDINGS AND RECOMMENDATIONS

Activities:

Staff interviewed the above listed VTA personnel and reviewed SOPs LRA-PR-411.6, MTN-PR-5002, MTN-PR-6001 and Reasonable Suspicion Webinar and learned that all LRV Operators have 4 ride checks performed on their operations of LRVs per year. The ride checks are performed by Service Management Field Supervisors and Training Department personnel.

Service Management performs compliance checks of all VTA operating rules in the field including RWP and SPRAT. Staff reviewed ride check records for 2015, 2016, and 2017. Safety Department personnel do not perform ride check inspections because they are not rail certified. Safety Procedure Rules Adherence Testing (SPRAT) are performed by both Service Management and Guadalupe Rail Management as per SOP LRA-PR-411.6.

Staff reviewed Maintenance Employee Field Evaluations for both Rail Maintenance and Way, Power, and Signals (WP&S). Staff found field supervisors had performed random 30 minute observations. If a violation occurred, the field supervisor would debrief employee and no written corrective action was taken. As of September 2016, observations are kept and logged in Industry Safe.

Staff reviewed Operations Department documentation to verify that supervisors are citing operating and maintenance personnel for rules violations. Employee records reviewed are #111840, ##12446, ##9806, #5020, and #13465. Once violation occurs, Operations requests data pack videos to verify violation and a file is initiated. Staff reviewed Maintenance employees' documentation in Industry Safe.

Staff reviewed Rail Controller Random Monitoring of Rule and Safety Compliance (OCC-RC-0001). Staff will close out finding from 2014 triennial audit.

Staff inquired regarding if there had been any accidents/incidents due to Operator rules violation and learned that on August, 11, 2016 an Operator passed a red bar. After investigation, the employee was sent back to the bus division.

Staff was advised that Hazards are entered into Industry Safe per a new Hazard Reporting process as stated in COS-SAF-PR--3002 and addressed in the RSSRB Committee.

Staff learned and observed that VTA performs tailgates, posts posters, rule of the week, SPRAT, pamphlets, awareness campaigns that address Medical Monitoring, Fatigue, Over The Counter (OTC) Meds, Stress, and Glucose.

For #8 and #11refer to checklist 13-B.

Findings:
None

Comments:
Staff clarified the definition of Corrective Action Plan as defined in GO164-D. Going forward, all VTA accidents/incidents, non-compliance to operating rules, RWP, PED, etc., will have the appropriate CAP as defined in GO164-D vs. reactionary response.

Currently, Industry Safe is being utilized to capture all inspections and observations performed on LR Maintenance personnel, which includes WP&S. VTA's on-line tracking program should be expanded to include all efficiency testing, SPRAT, Field Inspections, OCC and Rail Operations observations. The program could be required to capture the archived dbase to ensure all records are included. This will allow VTA Safety Department to fulfill their responsibilities to track all trends and perform analysis per VTA SSPP.

Recommendations:
None

2017 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SANTA CLARA VALLEY TRANSPORTATION AUTHORITY (VTA)

Checklist No.	**13-B**	**Element**	**Rules Compliance: Operations Safety Compliance**
Date of Audit	November 7-17, 2017	**Department(s)**	Service Management Transportation Operations Light Rail Technical Training Light Rail Maintenance Training System Safety and Compliance
Auditors/ Inspectors	Michael Rose Debbie Dziadzio Richard Fernandez	**Persons Contacted**	Gurpreet Singh, Asst. Superintendent Monte Bjerke, LR Maintenance Instructor Diego Carrillo, LR Tech Training Supervisor Janice Broock, Transportation Superintendent George Sandoval, Operations Mngr., MOW Abrar Ahmad, Service Mngt. Superintendent Larry Bajwa, Transportation Supervisor

REFERENCE CRITERIA

1. CPUC General Order 164-D
2. CPUC General Order 172
3. VTA System Safety Program Plan (SSPP) version 13 dated February 2015
4. VTA System Safety Program Plan (SSPP) version 14 dated February 2016
5. Use of Communication Devices By Bus and Light Rail Employees Policy, OPS-PL-0001 version 2 dated 3/5/2012
6. VTA SOP 1.2 Video Based Random Monitoring and Enforcement
7. VTA Operating Rulebook
8. VTA Standard Operating Procedures
9. VTA Maintenance Procedures
10. VTA RWP Manual

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Rules Compliance: Operations Safety Compliance

Interview VTA representatives responsible for Operations Safety, perform random observations and operations inspections, and review appropriate records to determine whether:

1. Maintenance Workers:
    a. Know and understand applicable wayside safety rules;

b. Comply with the PED Rules when performing any duties on or near railways;
c. Know and understand the rules and procedures for mainline operations.

2. Operators:
   a. Are in compliance with the applicable rules and procedures ;
   b. Comply with PED Rules while inside operator cabins;
   c. Are properly trained and knowledgeable in handling accident/incidents and emergency response situations, and coordinating with OCC during the same.
3. Controllers:
   a. Are properly preparing and maintaining records, reports, and logs;
   b. Perform duties in accordance with standard operating procedures, rule books, and bulletins;
   c. Are trained and knowledgeable in dealing with accidents/incidents and emergency response situations, and coordinating with VTA personnel and other agencies during the same.

Randomly select 10% controllers, 10 % operators, and 10% maintenance personnel, and perform ride-along or on-site inspections to verify their compliance with all applicable rules.

FINDINGS AND RECOMMENDATIONS

Activities:
Staff rode VTA's Light Rail system from November 7, 2017 to November 17, 2017 and interviewed Train Operators, Train Controllers, Dispatchers, Mechanical Technicians, Roadway workers.
Train Operators (TOs) inspected:
#3266, #12257, #10072, #14483, #13986, #5591
All TOs had the required operating rule book, timetable, daily train orders, current CA DMV License, current medical card, current VTA operator card, uniform, and working watch.

Train Controllers interviewed were:
#13817, #13905.
Logs reviewed were the pass down logs, daily logs, GUI logs (VTA Automated Train Tracking System), phone logs, UOR logs. All logs were properly maintained.

Staff observed an emergency call for medical on November 13, 2017 at 1325. Staff observed the Controller was calm, confident, experienced, and steadfast in his duties responding to the emergency. Upon receiving the emergency call, the Controller gathered the location, all information pertaining to the emergency, called the emergency response, sent someone to direct EMTs, and stayed in contact with VTA management who were responding to the

emergency, documented the UOR, and started an Incident Report which will be finalized by a Field Supervisor in Industry Safe.

Mechanical Technicians interviewed were:
#8998, #8095, #5184, #8076
While speaking to the Techs, Staff learned training requirements are followed as outlined in VTA's SSPP and SOPs. The Techs were knowledgeable in Operating Rules, RWP, and rules specific to their craft.

On November 14, 2017 at 1057, Staff observed Guadalupe Yard Tech deboard LRV#982B in the yard to line switch for tracks 6/7. Employee #14130 did not have on required hi-viz safety vest while operating cab. After being approached by Staff, the VTA employee put on his vest.

On November 14, 2017, Staff observed Contractor OJO (Subcontractor SCS Security Systems) at Middlefield Station. After observing and then approaching the work group, Staff learned that the contractor/subcontractor employees were not in compliance to CPUC General Order 175 and VTA's Roadway Worker Program. Permit #17-1787 was revoked and shut down. From information learned via checklist 13-C, the contractor/subcontractor will have to go through the Track Allocation Process again, including retraining in VTA's RWP. This incident is under investigation by VTA Safety, Service Management and Operations Departments.

On November 14, 2017, while VTA personnel were conducting a job briefing at Chynoweth Station, Staff noticed a Signal Supervisor had a Bluetooth PED device on his ear. After the briefing was completed, the crew entered the right of way and Staff noticed the VTA Supervisor was about to enter the track with the PED device still on his ear. Staff stopped and advised him about the PED device, which the Signal Supervisor advised Staff he had forgotten about the device, apologized and removed immediately.

Findings:
None

Comments:
VTA should ensure quality compliance oversight in all crafts continue to occur.

Recommendations:
None

2017 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SANTA CLARA VALLEY TRANSPORTATION AUTHORITY (VTA)

Checklist No.	**13-C**	**Element**	**Rules Compliance: Operator, Controller, and Maintenance Personnel Hours of Service**
Date of Audit	November 08, 2017	**Department(s)**	Service Management Transportation Operations Way Power & Signals Vehicle Maintenance System Safety and Compliance
Auditors/ Inspectors	Michael Rose Debbie Dziadzio Richard Fernandez	**Persons Contacted**	Cheryl Gonzales, Asst. Superintendent Naunihal Singh, Asst. Superintendent Abrar Ahmad, Service Mngt. Superintendent Lynn McFadden, Transit Safety Officer Paul Megia, Transit Division Supervisor Janice Broock, Transportation Superintendent Phil Sharp, LR Equipment Superintendent

REFERENCE CRITERIA

1. CPUC General Order 164-D
2. General Order 143-B, Rule 12.04 Hours of Service-Safety Sensitive Employees
3. VTA System Safety Program Plan (SSPP) version 13 dated February 2015
4. VTA System Safety Program Plan (SSPP) version 14 dated February 2016

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Rules Compliance: Operator, Controller, and Maintenance Personnel Hours of Service
Select at least 10% safety-sensitive employees at random from each of the following classifications:

- Train Controller
- Train Operator
- Substation Maintenance
- Overhead Maintenance
- Facilities Maintenance
- Track Maintenance
- Signals Maintenance
- Revenue Vehicle Maintenance
- Non-Revenue Vehicle Maintenance
- Supervisors or Managers

Inspect the employees' time cards for a three-month period during the past 24 months to determine whether:

1. Shifts were in compliance with the requirements that safety-sensitive employees may not remain on duty for more than 12 consecutive hours, or for more than 12 hours in any 16 hour period.
2. Each initial on-duty status was preceded by eight consecutive hours of off-duty status.

FINDINGS AND RECOMMENDATIONS

Activities:

Staff reviewed timekeeping records from July 1 through September 30 for CYs 2015, 2016, and 2017.

Employees reviewed were:

- 13 Light Rail Operators
- 3 OCC Controllers
- 3 Field Transportation Supervisors
- 1 Overhead Maintenance employee
- 7 Revenue Vehicle Maintenance employees
- 7 WP&S employees that included Substation, Track & Signal Maintenance personnel

Staff reviewed Hours of Work, Meal Period and Rest Period verbiage in the collective bargaining agreement between VTA and Amalgamated Transit Union (Div. 265).

Staff reviewed VTA Hours of Service (HOS) Acknowledgement Form. This form was initiated by VTA Management when an Hours of Service violation occurred approximately 2 years ago in Rail Maintenance discipline. After the HOS violation, all Safety Sensitive employees and their supervisors, managers, and superintendents were required to read the HOS regulation (GO 143-B, 12.04), and sign the acknowledgement form. Additionally, due to the HOS violation, a Superintendent's Notice was posted regarding compliance to HOS regulations, and tailgate meetings were held advising HOS regulations and violations. Staff confirmed that VTA's Deputy Director of Transit Operations has a hard copy of all signed forms along with a soft copy. Staff confirmed that the Rail Transit Operations Superintendent maintains a copy of the acknowledgement form in the Operator's employee file. Also, Staff confirmed that the OCC Superintendent maintains hard and soft copies for OCC personnel.

There were no findings on records reviewed for LRV Operators and OCC Controllers.

Findings:

The following VTA employees Hours of Service was noted as non-compliant:

- Field Transportation Supervisors:
  #9718 (8/21/17) on duty 0600, off duty 1855, scheduled off duty 1630
  #13809 (9/1/17) on duty 1630, off duty 0532, scheduled off duty 0300
  #5408 (8/24/17) on duty 0400, off duty 1000 – Supervisor training 1000 to 1950, scheduled off duty 1430
  #5408 (8/29/17) on duty 0500, off duty 1853, scheduled off duty 1530

- Rail Maintenance Employees
  #7050 (7/7/16) on duty 0559, off duty 1830, total time 12hrs 31min
  (7/15/16) on duty 0600, off duty 1830, total time 12hrs 30 min
  (7/18/16) on duty 0559, off duty 1830, total time 12hrs 31min
  (7/21/16) on duty 0559, off duty 1830, total time 12hrs 31min
  #8082 (7//8/15) on duty 0530, off duty 1759, total 12hrs 29min
  (8/17/15) on duty 0530, off duty 1800, total 12hrs 30min

Comments:
Staff relayed concern regarding VTA's timekeeping system, which appears to be inconsistent, at times clearly violating HOS regulations. In the current computerized timekeeping system, the spreadsheet shows an employee's on duty time, off duty time, and total work time. Total Work Time on HOS violations are showing 12hours 30 to 31 minutes. VTA advises that the 30 to 31 minutes indicate a 30 minute unpaid lunch. However, the 30 to 31 minutes appear in the Work Time column as total time worked, i.e. employee work time 12hours 30 (or 31) minutes.

Staff also relayed concerns regarding VTA Salaried Safety Sensitive personnel. Timekeeping is handwritten on a calendar with no documented confirmation regarding total hours worked. Staff suggests some type of check-in, check-out system, i.e. logging in and out of the computer timekeeping system.

Staff suggests that all safety sensitive employees be required to notify pertinent personnel when approaching one hour prior to reaching maximum time, no later than one hour, as per Light Rail Operating Rule Book, OP Rule 1.17.1.

Staff reviewed actions taken regarding an HOS violation that occurred regarding an employee in the apprentice program.

Recommendations:
1. VTA must ensure Hours of Service compliance by following General Order 143-B, Section 12.04.

2017 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SANTA CLARA VALLEY TRANSPORTATION AUTHORITY (VTA)

Checklist No.	**13-D**	**Element**	**Rules Compliance: Contractor Safety Program**
Date of Audit	November 9, 2017	**Department(s)**	Service Management Light Rail Technical Training Engineering and Transportation Program Delivery (ETPD) System Safety and Compliance
Auditors/ Inspectors	Michael Rose Debbie Dziadzio Richard Fernandez	**Persons Contacted**	Lyndsey Fujii, EH&S Specialist Naunihal Singh, Asst. Superintendent Abrar Ahmad, Service Mngt. Superintendent Lynn McFadden, Transit Safety Officer Summer Gonzalez, HR Analyst, Substance Abuse Cheryl Gonzales, Asst. Superintendent Jamie Johnson, Asst. Superintendent Diego Carrillo, LR Tech Training Supervisor Edna Pampy, Principal Safety Auditor Ken Ronsse, Deputy Director - ETPD

REFERENCE CRITERIA

1. CPUC General Order 164-D
2. CPUC General Order 143-B
3. VTA System Safety Program Plan (SSPP) version 13 dated February 2015
4. VTA System Safety Program Plan (SSPP) version 14 dated February 2016

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Rules Compliance: Contractor Safety Program

Interview the VTA representative responsible for the Contractor Safety Program and review VTA's relevant program documentation to determine whether:

1. VTA has developed and implemented a control document clearly establishing its responsibilities and requirements for the contractor safety program, including:
   a. Training and certification for contractors and their employees.
   b. The rules, regulations, and procedures applicable to contractors and their employees.
2. Verify that contractor training requirements are specified in contract documents.

3. VTA's procedures and practices clearly identify that VTA is ultimately in charge on its system, and that contractors and their employees must comply with all established safety rules and procedures.
4. VTA procedures require regular internal audits and inspections of construction sites to monitor compliance with its safety requirements.
5. VTA procedures establish the range of activities for monitoring Contractors and their employees, and enforcing compliance with safety requirements through regular unscheduled and unannounced compliance checks, as well as by scheduled periodic audits and inspections.
6. The Safety Department, Quality Assurance and ETPD has reviewed construction plans, performed site inspections, reviewed and approved contractor safety plans, and ensured contractors operate in compliance with VTA Operating Rules and Procedures Manual.
7. VTA's monitoring and enforcement activities are properly recorded, distributed, and filed.
8. There is sufficient interagency coordination among various contractors regarding safety issues.
9. Verify status of 2014 Triennial Review recommendation for TCAPs 2016030010, 2016030011, 2016030012, and 2016030013.

FINDINGS AND RECOMMENDATIONS

Activities:

Staff reviewed Contractor contracts and Submittal Cover Letters and determined that VTA has implemented a control document which clearly establishes VTA's responsibilities and requirements for the contractor safety program. Included in VTA responsibilities are contractor training requirements which are specified in the contract documents. Language in VTA contractor contracts clearly identifies that VTA is ultimately in charge on its system. Staff interviewed VTA Training Supervisor regarding Roadway Worker Protection training, certification and recertification frequencies, which is annually. During RWP training, Staff learned that contractors are advised of CPUC General Orders, Federal Regulations and VTA Operating Rules.

Contracts and Submittal Cover Letters reviewed were:

C16189F dated February 15, 2017
C12095F dated January 10, 2013
C16122F dated October 28, 2016
C16189F Submittal cover letter
C16122F Submittal cover letter

Staff interviewed VTA Service Management team and learned VTA has a strong Track Allocation plan and procedures. Weekly Track Allocation meetings ensure that contractors who will be on and/or fouling VTA Right of Way are current in RWP certification, VTA permit process for contractors is followed, and that VTA's RWP program is in compliance to CPUC GOs.
Staff reviewed VTA SOP 1.4 and Industry Safe Inspections Guide regarding Roadway Worker Protection Monitoring Program and learned that all RWP trained VTA employees are responsible to enforce compliance with safety requirements through regular and unannounced compliance checks. The SOP also advises specific personnel who are charged with duties of field inspections and observations of VTA and contractor employees regarding compliance of RWP rules. Personnel listed are: WP&S Supervisors, LRV Maintenance Supervisors, Transportation Supervisors, Transit Safety Officers, LR Technical Trainers, and Engineer/Construction Inspectors. Compliance checks are then entered into Industry Safe and key, pertinent personnel are made aware of the observations of compliance and/or non-compliance of RWP, General Orders, and VTA Operating Rules. Depending on the non-compliance observation, the Roadway Worker may be removed from the work site, or coached on-site regarding the observation. When non-compliance is observed a corrective action plan will be initiated by the pertinent department. This determination as to which department will be responsible for the CAP is made by VTA System Safety Department. System Safety is responsible for tracking all trends and analyzing them. The tracking is possible due to VTA utilizing Industry Safe system to maintain all compliance records. Staff reviewed inspection forms #7401 and 8600.

During Staff's interview with the above listed personnel, it was determined that interdepartmental communications and co-ordinations have improved significantly from Triennial Audit 2014.

Findings:
None

Comments:
While Staff reviewed Submittal Cover Letters #EC201702-0272, they noticed in one section, the contractor advises that employee training records and inspection records would be maintained for one year. In another section, the contractor advises that the same records would be maintained for 3 years. This inconsistency was brought to the attention of VTA ETPD Deputy Director.

Recommendations:
None

2017 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SANTA CLARA VALLEY TRANSPORTATION AUTHORITY (VTA)

Checklist No.	**13-E**	**Element**	**Rules Compliance: Operating Rule Book, Maintenance Procedures Manual, Standard Operating Procedures Manual, and Operations Bulletin Revisions**
Date of Audit	November 16, 2017	**Department(s)**	System Safety and Compliance Transportation Operations Service Management Light Rail Technical Training Light Rail Maintenance Training Way Power and Signals Vehicle Maintenance
Auditors/ Inspectors	Michael Rose Debbie Dziadzio Richard Fernandez	**Persons Contacted**	Janice Broock, Transportation Superintendent Naunihal Singh, Asst. Superintendent Larry Bajwa, Transportation Supervisor Gurpreet Singh, Asst. Superintendent Abrar Ahmad, Service Mngt. Superintendent Diego Carrillo, LR Tech Training Supervisor Paul Megia, Transit Division Supervisor Phil Sharp, LR Equipment Superintendent George Sandoval, Operations Mngr., MOW Michael Brill, System Safety Supervisor Daniel Hecht, Ops Mngr. LRV Maintenance Joel Milburn, Superintendent WP&S Monte Bjerke, LR Maintenance Instructor Greg Bushner, LR Maintenance Instructor Juan Delgado, Management Analyst

REFERENCE CRITERIA

1. CPUC General Order 164-D
2. CPUC General Order 143-B
3. VTA System Safety Program Plan (SSPP) version 13 dated February 2015
4. VTA System Safety Program Plan (SSPP) version 14 dated February 2016
5. VTA SOP 1.1 Light Rail SOP Program
6. VTA Maintenance Standard Procedures Program MTN-PR-1000
7. VTA MTN-PR-5001 Light Rail Maintenance Procedure and Development

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Rules Compliance:

Operating Rule Book, Maintenance Procedures Manual, Standard Operating Procedures Manual, and Operations Bulletin Revisions

Interview VTA representative responsible for operations rules and procedures, maintenance procedures, and review necessary documentation to determine whether:

1. The Standard Operating Procedures, Rule Book, the Maintenance Procedures and all active Operating Bulletins are reviewed, revised systematically and distributed to the relevant personnel. Discuss the process used to review and update rules and procedures.
2. The results of each review of the Standard Operating Procedures, the Maintenance Procedures and Operating Bulletins are documented in a memorandum to file, providing a summary of the results and the appropriate manager's determination whether revisions are needed.
3. All Operating Bulletins were approved by the Chief Operating Officer with the concurrence of affected departments.
4. Operating Bulletins were issued in a timely manner and provided to affected personnel.
5. A record is maintained of all Operating Bulletins issued, and employees receiving the bulletins.
6. Active Operating Bulletins are posted in specified locations, and inactive bulletins are removed in a timely manner.
7. All new operating rules and bulletins were distributed to CPUC Staff during the past 12 months, and the rule/bulletin distribution process has been tracked.
8. Does VTA Safety Department conduct assessments to evaluate safety-related impacts to rules changes and bulletins?
9. Interview VTA Safety Department representatives to determine when rules and procedures were last reviewed (certain rules and procedures should be reviewed after accidents) and revised.
10. Conduct interviews with VTA Safety Department representatives to discuss their role in ensuring that safety concerns are addressed in VTA's rules compliance program.
11. Do Safety Department representatives support any rules compliance activities?
12. Do Safety Department representatives receive reports from the VTA's operations and maintenance departments regarding the performance of rules checks, assessments, and testing?
13. Are hazards identified from the rules compliance process and reported to VTA Safety Department and managed through the hazard management process?

FINDINGS AND RECOMMENDATIONS

Activities:
Through the interview process of VTA representatives, Staff learned SOP's, Rule Book and Maintenance procedures are reviewed, revised and systematically distributed to the relevant personnel through the RRPD & RSSRB Committees. Staff reviewed 6 months of RRPD & RSSRB minutes and confirmed the minutes are documented in a memorandum to file. The RSSRB, which System Safety chairs, is responsible for safety related system modifications and are formally reviewed and approved. The RRPD has the responsibility for the development and modification of Bulletins, Rules and Standard Operating Procedures. The Chief Operating Officer approves all of these changes with the concurrence of affected departments.

Operating Bulletins are issued in a timely manner, reviewed by personnel and a hard copy is given to each effected employee. Also, VTA utilizes the HUB internet employee portal, which is updated with any changes. Staff learned that there are specific, assigned personnel to remove old SOPs and Bulletins and ensure only current SOPs and Bulletins are being displayed. Operating Bulletins are issued to VTA Personnel and each department keeps a binder and/or clipboard for active bulletins. It is the operator's responsibility to review each Operating Bulletin.

VTA's Operating Rule book is reviewed every 2 years by RRPD and Technical Training reviews any rules involved in an accident.

Safety concerns are brought up during RRPD & RSSRB meetings. Also occurring monthly are joint safety committee meetings, which include VTA Management and VTA ATU and VTA SEIU. Technical Training advising any rule compliance activity, i.e. Lock-out Tag-out, SPRAT and RWP as per VTA's SSPP.

Currently, VTA is utilizing Industry Safe in some areas of operations regarding rules compliance. When asked, VTA personnel acknowledged that a standard tracking process which would maintain records of compliance and inspection reports would ensure a more complete image of VTA operations and make it easier to track and analyze trends, both pro and con.

System Safety is initiating a Hazard Management Program that Commission Staff has reviewed and found unacceptable twice after review by the CPUC. VTA is currently working on their third draft. The Hazard Management Process will include concerns from the Active ROW Committee.

Findings:
None

Comments:

Staff learned that the Safety Department does not conduct assessments to evaluate safety related impacts to make changes to their rules and bulletins. If VTA utilized a tracking system, such as Industry Safe, in all their areas of operations, this duty could be accomplished in a timely manner.

Recommendations:
None

2017 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SANTA CLARA VALLEY TRANSPORTATION AUTHORITY (VTA)

Checklist No.	**13-F**	**Element**	**Rules Compliance: Operations Control Center & SCADA**
Date of Audit	November 9, 2017	**Department(s)**	System Safety and Compliance Transportation Operations Service Management
Auditors/ Inspectors	Michael Rose Debbie Dziadzio Richard Fernandez	**Persons Contacted**	Antonio Tovar, Transit Safety Officer Denise Patrick, Safety Manager Naunihal Singh, Asst. Superintendent Gurpreet Singh, Asst. Superintendent Edna Pampy, Principal Safety Auditor Larry Bajwa, Transportation Supervisor Ramesh Dhingra, Engineering Group Mngr. Jim Skaife, Communications System Analyst David Hill, Deputy Dir Transit Operations George Sandoval, OPS Mngr. (MOW Maint) Stephen Flynn, Advisory Committee Coord

REFERENCE CRITERIA

1. CPUC General Order 164-D
2. CPUC General Order 143-B
3. VTA System Safety Program Plan (SSPP) version 13 dated February 2015
4. VTA System Safety Program Plan (SSPP) version 14 dated February 2016
5. OCC Policy and Procedures Manual
6. SCADA Maintenance Procedures

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Rules Compliance: Operations Central Control & SCADA

Interview VTA representatives responsible for Operations Control Center procedures and training and review necessary documentation to determine whether:

1. The OCC Manual is reviewed and revised, as necessary, on an as needed basis.
2. Revisions to the OCC Manual are made either through Operating Bulletins, or other written documents signed by the appropriate Department Managers.
3. Review Unusual Occurrence Logs and verify if properly maintained.
4. Perform review records to determine whether SCADA has been maintained as required, and that all preventative and corrective maintenance practices comply with the applicable reference criteria.

5. Review SCADA reports/logs related to intrusion alarms, false presence, and others associated with SCADA monitoring.
6. Verify status of 2014 Triennial Review Recommendation TCAP 2016030019

FINDINGS AND RECOMMENDATIONS

Activities:
Staff interviewed OCC Management and learned that OCC SOPs are currently being revised every two weeks during the Rail Rules and Procedures Development (RRPD) meeting. This is an ongoing process that started approximately a year ago. Staff reviewed the VTA SOP Manual to confirm revisions are occurring.

Staff requested the Unusual Occurrence Log for November 8, 2017 and reviewed all crossing gate malfunctions. Controller properly filled out documentation as per the outlined procedures.

Staff reviewed October 2017 SCADA daily checklist.

Staff reviewed LRV SCADA System and GPS Upgrade Project Manual (rev March 2014), Alstom Maintenance Contract Procedures and SCADA Maintenance Manual. Staff learned that inspections are performed daily and that SCADA has a system wide check every 3 months by VTA's contractor, General Electric.

2014 TCAP 2016030019 – Staff reviewed SCADA System Alarm Logging Procedure (rev #3 October 19, 2017) and reviewed October and November 2017 intrusion alarms list. Staff then reviewed VTA's SCADA Alarm Tracking reports and logs. This new process started October 2017 to ensure closure to alarm call-outs (from Controllers) to various departments for inspection, repair, and closure. Logs reviewed were:

10/1/17 – 10/31/17 Maintenance/Signal Alarms
10/1/17 -10/31/17 Communications/SCADA Device
10/1/17 – 10/31/17 Traction Power/OCS Alarm

Findings:
None

Comments:
None

Recommendations:
None

2017 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SANTA CLARA VALLEY TRANSPORTATION AUTHORITY (VTA)

Checklist No.	**14-A**	**Element**	**Facilities and Equipment Inspections: Non-Revenue Facilities and Wayside**
Date of Audit	November 06, 2017	**Department(s)**	Environmental, Health and Safety Way, Power and Signals Vehicle Maintenance System Safety and Compliance
Auditors/ Inspectors	Matthew Ames Adam Freeman James Matus	**Persons Contacted**	Lyndsey Fujii, EH&S Specialist Octavio Garcia, Manager of Security Programs Mel Gonzales, Facilities Maint. Coordinator Juan Delgado, Management Analyst Christina Aguirre, Office Specialist Joel Milburn, WP&S Superintendent Phuong Mai, Tech Infrastructure Supervisor Richard Bertalan, Technology Manager Mike Brill, System Safety Supervisor David Lasich, Facilities Maintenance Rep Athar Taha, Asst. Transportation Engineer

REFERENCE CRITERIA

1. CPUC General Order 164-D
2. CPUC General Order 143-B
3. VTA System Safety Program Plan (SSPP) version 13 dated February 2015
4. VTA System Safety Program Plan (SSPP) version 14 dated February 2016
5. VTA MTN-PR-3003 Facilities and Equipment Maintenance Responsibilities dated 6/3/2003
6. VTA MTN-PR-3004 Responsibilities for the Facilities Maintenance Library dated 7/16/2001
7. VTA MTN-PR-3105 Card Access, Lock and Key Control dated 7/19/2001
8. VTA MTN-PR-3106 Facility Housekeeping dated 12/5/2003
9. VTA MTN-PR-3107 Fire Suppression/Alarm System: Monitoring, Test, Maintenance and Repair dated 12/7/2001
10. VTA MTN-PR-3108 Crane Inspection and Use Procedure dated 10/9/2002
11. VTA MTN-PR-3301Maintenance and Storage of Tools and Equipment dated 3/22/2002
12. VTA MTN-PR-6310 5-Year Dry Standpipe Testing and Certification dated 10/15/2000
13. VTA Injury and Illness Prevention Program (IIPP) Plan

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Facilities and Equipment Inspections: Non-Revenue Facilities and Wayside

Interview VTA representatives and review appropriate records for past 3 years to determine whether:

1. Required inspections were performed as per supporting references.
2. Inspections were properly documented and noted, and discrepancies were corrected in a timely manner.
3. Potential hazards found during inspections were tracked from recommendation, Corrective Action Plans, and implementation.
4. Check a sampling of hazards identified during inspections to ensure they are immediately reported, documented, and tracked through resolution.
5. Check a sampling of *"Corrective Action Plans"* to determine timeliness of resolution and ensure follow-up activities are performed, hazard resolution has taken place, and a measure of the effectiveness of implemented hazard controls has taken place, documented and noted discrepancies were corrected in a timely manner.

FINDINGS AND RECOMMENDATIONS

Activities:

Staff interviewed VTA personnel and reviewed records for the past three years and inspected facilities. Multiple policy changes occurred during the past three years and personnel have implemented Industry Safe and several spreadsheets to track inspections and potential hazards.

1. Staff reviewed inspection records from September 2014 to October 2017 and determined that required inspections were performed generally inconsistent with reference procedures. Facilities inconsistently conducted monthly inspections and recorded them in Industry Safe. Staff reviewed monthly facilities safety inspection checklist for the Guadalupe facility, buildings A, C, D, E, F, G, H, and K.
2. Staff determined that inspections were inconsistently documented and noted, and discrepancies were inconsistently corrected in a timely manner. VTA could not provide all monthly facility inspections records for Guadalupe facility, buildings A, C, D, E, F, G, H, and K, because the inspections were not completed.
3. Staff determined that potential hazards found during inspections were inconsistently tracked from recommendation through implementation of corrective actions.
4. Staff reviewed inspection records and found them to be properly documented with discrepancies noted but some minor discrepancies may have been corrected immediately without being properly noted as repairs being made; in these cases, no corrective action work order was generated. VTA should make notes if immediate corrections are made, repairs noted through completion. Staff found 2 open corrective action items related to the monthly facility inspections: open date October 31, 2017 fire alarm, open date September 13, 2017 Emergency contact number. In addition, Log all maintenance inspections and repairs on lock systems.

5. Staff determined that corrective actions are generally tracked until repair of defective conditions noted as complete.

Findings:

1. Required facilities inspections (Fire Suppression System, Crane & Boom, Facility Monthly Safety Checklist, and Standpipe) were not recorded consistently to note potential hazards and inspection findings; track potential hazards and inspection findings through implementation of corrective actions.
2. Trolley barn found with housekeeping and cleanliness safety defects, blocked fire extinguishers, tripping hazards, and blocked emergency exits.

Comments:

1. VTA should update the Fire System Inspection form in order to note findings and accomplish implementation of corrective actions in regards to inspection findings.
2. VTA should follow procedure AS-IT-PR-5102. VTA was unable to provide detailed documentation to the maintenance standard procedures. Annual audits are being performed, however, safety and security need to adhere to section 3.0 (3.1) Responsibilities of AS-IT-PR-5102 with documented evidence of compliance. This section requires logs for individual key assignments, reporting of lost keys, and transfer of keys.
3. VTA should make notes if immediate corrections are made, repairs noted through completion.
4. Staff reviewed inspections for overhead cranes. Quarterly inspection forms are not being completely filled out. Deficiencies on inspections are not being followed up for completeness of repair. VTA has no tracking system to verify safety critical repairs being made on cranes and could not provide proper documentation of actual repair.

Recommendations:

1. VTA should comply with current standard operating procedures for facility inspections, fire prevention system inspections, lock & key control, crane and boom inspections, and standpipe system inspections to include forms are properly completed, noted defects are tracked until completion, and corrected in a timely manner.
2. VTA should comply with housekeeping and cleanliness standards, which includes providing access to fire extinguishers and exits.

2017 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SANTA CLARA VALLEY TRANSPORTATION AUTHORITY (VTA)

Checklist No.	**14-B**	**Element**	**Facilities and Equipment Inspections: Stations and Emergency Equipment**
Date of Audit	November 6, 2017	**Department(s)**	Way, Power, and Signals
Auditors/ Inspectors	Shane Roberson Matthew Ames Salvador Herrera	**Persons Contacted**	Joel Milburn, WP&S Superintendent

REFERENCE CRITERIA

1. CPUC General Order 164-D
2. CPUC General Order 143-B
3. VTA System Safety Program Plan (SSPP) version 13 dated February 2015
4. VTA System Safety Program Plan (SSPP) version 14 dated February 2016
5. VTA MTN-PR-6201 Signals Department Platform Preventive Maintenance
6. VTA MTN-PR-6301 WP&S Light Rail Station Maintenance
7. VTA MTN-PR-6302 Trash Removal
8. VTA MTN-PR-6303 Landscape Maintenance
9. VTA MTN-PR-6304 Preventative Maintenance Steam Cleaning and Station Detail
10. VTA MTN-PR-6305 Elevator Preventative Maintenance and Trouble Calls
11. VTA MTN-PR-6309 Annual Backflow Testing for Station Maintenance

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Facilities and Equipment Inspections: Stations and Emergency Equipment
Interview VTA representatives and review appropriate records for the last 3 years to determine whether:

1. Required inspections were performed.
2. Inspections were properly documented and noted discrepancies were corrected in a timely manner.
3. Potential hazards found during inspections were tracked from recommendation, Corrective Action Plans, and implementation.

FINDINGS AND RECOMMENDATIONS

Activities:

Staff review records for the following:

VTA MTN-PR-6201 Signals Department Platform Preventive Maintenance at the following locations:

- Substation 13
- Bay shore
- Karina
- Tasman
- Cisco Way
- Mountain View

The following VTA procedures were inspected and records reviewed. These records are combined into daily inspection forms. Staff reviewed 3 months of inspections.

- VTA MTN-PR-6301 WP&S Light Rail Station Maintenance
- VTA MTN-PR-6302 Trash Removal
- VTA MTN-PR-6303 Landscape Maintenance
- VTA MTN-PR-6304 Preventative Maintenance Steam Cleaning and Station Detail
- VTA MTN-PR-6305 Elevator Preventative Maintenance and Trouble Calls
- VTA MTN-PR-6309 Annual Backflow Testing for Station Maintenance

Staff noted VTA has combined MTN-PR-6301 through MTN-PR-6305 into one form (MTN-PR-6301) and has assigned it exclusively to a station maintenance crew.
No defects were noted after reviewing daily inspection forms.

Findings:

1. Staff noted several documents not initialed when technicians made corrections to forms MTN-PR-6201.
2. Staff noted open work order backlog as far as November 2, 2016.

Comments:
VTA should support technicians giving them the appropriate resources to close open work orders without undo delay.

Recommendations:

1. VTA should instruct all employees that using correction fluid/white out or scribbling/inking out mistakes on official forms is not valid. Any correction should be a single strike through the mistake and initialed by the employee. All forms should be filled out using black or blue ink only and no pencils.

2017 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SANTA CLARA VALLEY TRANSPORTATION AUTHORITY (VTA)

Checklist No.	**14-C**	**Element**	**Facilities and Equipment Inspections: Tunnels, Bridges, and Aerial Structures**
Date of Audit	November 13, 2017	**Department(s)**	Operations Maintenance Engineering System Safety and Compliance
Auditors/ Inspectors	Jamie Lau Matthew Ames Michael Warren	**Persons Contacted**	Manjit Khalsa, Sr. Systems Engineer Erica Casillas, Asst. Transportation Engineer Mike Brill, System Safety Supervisor

REFERENCE CRITERIA

1. CPUC General Order 164-D
2. CPUC General Order 143-B
3. VTA System Safety Program Plan (SSPP) version 13 dated February 2015
4. VTA System Safety Program Plan (SSPP) version 14 dated February 2016
5. VTA MTN-PR-7101 Bridge and Structures Inspection dated June 4, 2008

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Facilities and Equipment Inspections: Tunnels, Bridges, and Aerial Structures
Interview VTA representatives and review appropriate records to determine whether:

1. Structures inspections were performed.
2. Inspections were properly documented and noted, and discrepancies were corrected in a timely manner.
3. Potential hazards found during inspections were tracked until resolution.
4. The RSSRB Committee and System Safety and Compliance Department are aware of all safety hazards pertaining to civil structures.

FINDINGS AND RECOMMENDATIONS

Activities: Staff interviewed VTA personnel related to this element and noted the following:

1. According to MTN-PR-7101 procedure, VTA's light rail bridges and structures are to be inspected biennially.

CPUC Staff randomly reviewed inspection records for following 8 structures for their previous two inspection cycles:

Structure ID#	Structure Name	2013 Inspection Date	2016 Inspection Date
1	Miyuki Tunnel	9/17/2013	6/09/2016

17	Hillside Avenue	9/20/2013	6/16/2016
26	Almaden Road UP	10/14/2013	8/04/2016
51	Hamilton Avenue UP	11/04/2013	8/05/2016
60	Diridon Pedestrian Tunnel	12/09/2013	8/11/2016
72	Sound Wall #5	10/04/2013	7/07/2016
78	LRT Aerial Guideway-Great Mall Pkwy	12/10/2013	9/29/2016
82	Tasman Drive UP	10/08/2013	7/21/2016

Staff found the average time between the previous two biennial inspections was about 33 months. VTA's procedure does not have a frequency requirement on such "biennial" inspection.

Staff noted all reviewed inspections were performed by California registered professional engineers as required by its procedure.

2. VTA's procedure requires inspections to be documented with inspection forms; issues are to be described and photographed, and rated with Visual Condition Assessment (VCA) scale. Inspectors should propose remedy for each issue.

From the 8 sampled 2016 inspection records, Staff found all of them were documented per VTA's procedure requirements, except for the following two:

- Structure ID #60, Diridon Pedestrian Tunnel, missing VCA for "Figure 7";
- Structure ID #82, Tasman Drive UP, missing proposed remedy for "Figure 8".

Staff found all identified issues from 2013 inspection were either corrected under Contract C14012F, or still open. Contract C14012F was completed on May 1, 2015.

Many of the remaining open items from 2013 inspection were recommended by the inspector as to "monitor." The most severe rating on the remaining open work list was level 4 – "poor," with structures having "advanced section loss, deterioration, spalling, or scour."

The identified issues from 2016 inspection were still open, as VTA is still gathering funds for repair. 2016 inspection report was concluded in September 2016.

Staff field verified the following Contract C14012F work and found they were completed as noted:

- Structure ID#73, Bridge Over Coyote Creek, Figure 1 – Epoxy injected on crack.
- Structure ID#73, Bridge Over Coyote Creek, Figure 3 and 4 – Crack monitor installed.
- Structure ID#81, Barber Lane UP, Figure 1, 2, 3, 6, 7, and 8 – Epoxy injected on crack.

3. Staff randomly selected 3 identified issues from 2013 inspection and verified on record that they were completed under Contract C14012F:

- Structure ID#73, Bridge Over Coyote Creek, Figure 1 - Hairline crack on wall noted; Epoxy injected;
- Structure ID #60, Diridon Pedestrian Tunnel Extension, Figure 5 - Leaching of brick mortar above west entrance noted; concrete surface cleaned;
- Structure ID #52, Hamilton Street Access Structure, Elevator and Plaza, Figure 11 - Rust stain from handrail; stain removed.

Staff also randomly selected 3 identified issues from 2013 inspection that were still open, and verified they were being tracked on a matrix maintained by a VTA staff:

- Structure ID#64, Hamilton Avenue Retaining Wall, Figure 21 – panel joint and panel spall; need to seal space and monitor
- Structure ID#75, Great Mall/Main Aerial Station, Figure 3 – Small spalling on bottom of middle landing slab; monitor.
- Structure ID#78, Great Mall/Capitol Avenue, Figure 11 – Severe paint peeling and rust.

4. Staff reviewed meeting minutes dated January 2017 to November 2017 and verified RSSRB Committee and System Safety and Compliance Department attended monthly RSSRB meetings with a LR Maintenance Engineering representative. Bridges and structures inspection findings and recommended repairs were discussed in the November meeting.

<u>Findings:</u>

1. According to American Public Transportation Association (APTA) Standard RT-FS-S-001-02, Rail Transit Fixed Structures Inspection and Maintenance, Section 3.1, Inspection Frequency, "Each bridge shall be routinely inspected at regular intervals at least once every 24 months." VTA requires bridge structures to be inspected biennially (or 24 months); Staff found VTA inspected its bridge structures 33 months after its previous inspection in 2013. VTA did not inspect its bridge structures per industry standard.
2. VTA's bridges and structures inspection procedure does not specify interval for a "biennial" inspection in months. Staff was unclear if VTA requires a biennial inspection to be done within 24 months, or 35 months – both are within two calendar years. Industry standard for a bridge inspection is once every 24 months.
3. The procedure requires an inspector to document VCA and proposed remedy for all identified issues during a bridge inspection. From Staff's sampled 2016 inspection records, Structure ID #60 missed a VCA, and Structure ID #82 missed a proposed remedy. Staff found VTA's inspectors did not document findings as required by the procedure.

Comments:

3. VTA should include Bridges and Structures to VTA's SSPP Element 11, Maintenance Audits / Inspection.
2. VTA should describe the frequency of monitoring under structural inspection findings, such as how soon an inspector should re-check the condition, and what to monitor. If the act of monitoring requires a measurement, initial dimension should be noted in finding.
3. VTA repaired some identified structural issues (from 2013 inspection) under Contract C14012F, while others left open. Staff noted some of the repaired structures actually had lower severity rating than the ones that were unrepaired. VTA staff indicated the repaired structures were selected by the inspectors; however, the inspectors did not provide selection criteria as to why some structures get to be repaired before others. Staff suggests VTA to request inspectors to provide repair priority criteria.
4. During Staff's field visit to Structure ID#73 at Coyote Creek, Staff found indications of drainage channel embankment erosion near Bent 5. If not remediated, the embankment is exposed to a scour event, possibly presenting a potential hazard to Bent 5. Staff suggests that VTA assess this condition, as well as other VTA light rail bridges and structures that may be impacted by future weather events.
5. During Staff's field visit to Structure ID#81, Tasman Drive UP, Staff found a section of the abrasion liner fatigued to the point of no effectiveness at the north end of the east abutment, and tumbleweeds on top of the wing wall. VTA should assess the condition and repair as necessary.
6. Address remaining open structural findings dated from 2013 inspection and prioritize repair according to their VCA.

Recommendations:

1. VTA should inspect its bridge structures at least once every 24 months per industry standard.
2. VTA's Structures Inspection procedure should specify inspection frequency in months.
3. VTA to comply with its MTN-PR-7101, Section 2 to rate each identified issue from inspections with Visual Condition Assessment, and proposed remedy.

2017 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SANTA CLARA VALLEY TRANSPORTATION AUTHORITY (VTA)

Checklist No.	**14-D**	**Element**	**Facilities and Equipment Inspections: GO 95 Right-of-Way Compliance**
Date of Audit	November 8, 2017	**Department(s)**	Way, Power, and Signals
Auditors/ Inspectors	Jamie Lau Steve Espinal Shane Roberson Salvador Herrera	**Persons Contacted**	Joel Milburn – WP&S Superintendent Joaquin Rivera – Power Supervisor Judy Kaur – Power Supervisor Antonio Tovar - Transit Safety Officer Manjit Khalsa – Sr. Systems Engineer Gurpreet Gill – WP&S Supervisor

REFERENCE CRITERIA

1. CPUC General Order 95
2. CPUC General Order 164-D
3. CPUC General Order 143-B
4. VTA System Safety Program Plan (SSPP) version 13 dated February 2015
5. VTA System Safety Program Plan (SSPP) version 14 dated February 2016
6. VTA-MTN-PR 6150 Inspection of Overhead Catenary

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Facilities and Equipment Inspections: GO 95 Right-of-Way Compliance

Select at least four (4) of mainline or yard track sections at random from each of the following areas:

1. Vasona Line
2. Guadalupe Line (Santa Teresa and Almaden)
3. Tasman West Line (Mountain View)
4. Tasman East Line (Alum Rock)

Interview VTA representatives, review appropriate records, and perform visual inspections and measurements to determine whether for each track section:

1. Right-of-Way inspection and maintenance standards and programs are compliant with General Order 95.
2. The required monthly and annual inspections were performed during the past 3 years as required by the referenced procedure.
3. Inspections were properly documented and noted, and discrepancies were corrected in a timely manner.

4. Potential hazards found during inspections were tracked from recommendation, Corrective Action Plans, and implementation.
5. All right-of-way components are in compliance with the applicable reference criteria, or variances were submitted properly and approved by CPUC.

FINDINGS AND RECOMMENDATIONS

Activities:

1. Staff reviewed VTA's current overhead catenary system (OCS) inspection procedure, VTA-MTN-PR 6150 (Version 4) and found it compliant with GO 95. The procedure contains scope of inspections, roles and responsibilities, inspection frequencies and document control.

2. According to the current procedure, the entire OCS is to be inspected monthly and annually; insulators are to be sample tested biennially by the Maintenance Engineering Department.

Since August 28, 2017, VTA's updated MTN-PR-6150 requires monthly inspections to be completed within 45 days of issuance, and annual inspections to be completed within 180 days of issuance.

Staff sampled the following inspection records:

Monthly inspections:

- Tasman East/Capitol Line – August 2016 to August 2017
- Vasona Line - August 2016 to August 2017
- Mall (San Jose downtown) – August 2016 to August 2017
- Younger/Yard – August 2016 to August 2017
- Lick Spur - August 2016 to August 2017

Annual Inspections:

Vasona Line:

- Campbell to Winchester – September 2014 to September 2016
- Bascom to Hamilton – August 2013 to August 2016
- Race to Fruitdale – July 2013 to July 2016
- San Fernando to San Jose Diridon – June 2013 to June 2016

Guadalupe Line:

- Santa Teresa to Cottle - February 2015 to February 2017
- Snell to Blossom Hill – March 2013 to March 2017
- Curtner to Tamien – June 2013 to June 2016
- Tamien to Virginia – June 2013 to June 2016

Tasman West Line:

- Mt. View to Whisman – September 2013 to September 2016
- Whisman to Middlefield – September 2013 to September 2016
- Fair Oak to Vienna - September 2013 to September 2016
- Vienna to Reamwood - September 2013 to September 2016

Tasman East Line:

- Baypointe to Cisco Way – June 2014 to June 2016
- Cisco Way to I-880 – June 2013 to June 2016
- Great Mall to Montague – May 2013 to May 2016
- Hostetter to Berryessa – March 2013 to March 2017

Mall:

- St. James South to Santa Clara South (Mall) – March 2014 to March 2016

Staff found the following:

- Lick Spur's March 2017 monthly inspection was completed on November 2, 2017. It was completed more than 45 days past the issuance date of March 1, 2017.
- Guadalupe Line's Snell to Blossom Hill section's year 2013 annual inspection was skipped.
- Guadalupe Line's Snell to Blossom Hill section's year 2015 annual inspection was missing inspection form; Staff was unable to verify its supervisory sign-off. However, inspection data was entered into SAP (a database), which a foreperson sign-off could be verified. Both foreperson's and supervisor's sign-off are required for a completed annual inspection form.
- Guadalupe Line's Curtner to Tamien section's year 2013 annual inspection was skipped
- Guadalupe Line's Tamien and Virginia section's year 2013 annual inspection was skipped.
- Guadalupe Line's Tamien and Virginia section's year 2015 annual inspection was skipped.
- Tasman West Line's Mt. View to Whisman section's year 2013 annual inspection was skipped.
- Tasman West Line's Mt. View to Whisman section's year 2014 annual inspection form had no foreperson's or supervisor's signature on manhole inspection form.
- Tasman East Line's Great Mall to Montague section's year 2017 annual inspection was past due on November 1, 2017.

Biennial Insulator Testing:

VTA performed the following insulator testing between years 2014 and 2017:

- VTA hired a consultant to perform a rod insulators tensile strength test on 12 samples with a report dated on June 12, 2014. The test results indicated no signs of degradation found.
- In year 2015, VTA hired another consultant to perform a tensile testing of a trolley wire splice sample as a result of an OCS failure in the same year. The test indicated that sampled splice had no manufacture defect, however, did not achieve full rated strength of the splice. The consultant recommended performing another testing on two additional splices for further analysis.
- Between year 2015 and 2016, two additional samples were submitted to the consultant for testing as recommended. The consultant concluded no "manufacturing defects" found and "they withstood test loads well in excess of the wire static service load of 3,000 lbf."
- In October 2017, the same consultant conducted another rod insulator testing as a result of a January 2017 overhead failure incident. The consultant sampled nine nearby insulators for tensile testing and found "they still retained strength in excess of their original specification." The consultant recommended VTA to take measurements of 20 samples of wire tension for further evaluation.

In summary, VTA had a sampled insulator testing in year 2014, and two additional sampled testing as a result of overhead failure incidents between 2015 and 2017. A VTA staff responsible for the insulator testing program indicated the program development is ongoing. Desirably, the testing program needs to specify minimum insulator sample size and types of insulators to be tested; VTA is trying to develop the program based on consultant's recommendations through ongoing insulator testing.

3. VTA staff kept hardcopies of inspection records and defects were documented in the SAP database. Staff sampled work orders resulted in trouble calls and inspections. All completed work orders were signed off by a Supervisor as required by the procedure.

Staff randomly selected two identified hazards from completed annual inspection records and verified they were created work orders and noted as corrected:

- WO #30500540132 – Tree trimming along Tasman West Line's Mt. View to Whisman section.
- WO #30500402272 – Install "C Jumpers" on various places along Tasman East Line's Hostetter to Berryessa section.

Staff randomly selected completed work orders from Tasman East Line's Penitencia Creek to McKee section and site verified works were completed as noted:

- WO #30500876218 – "Re-secured Philistran hanging down by Pole C1087";
- WO #30500876220 - "Straightened out sled";

- WO #30500876217 - "Replaced frayed S jumpers by pole C1054".

4. Potential hazards found during inspections were created work orders on SAP and tracked until fully closed.

5. Staff walked and visually inspected Tasman East Line's Penitencia Creek to McKee section between pole C1087 and C1054. Staff did not find any right-of-way component defect as referenced in VTA's procedure. Since last triennial safety audit, VTA did not submit any procedural or GO 95 variance to CPUC.
6. Staff found WO #30500890262 had no identified location. The work order was a trouble call regarding a "possible frayed pre-form" on a guy wire; a VTA responded to the location and found the condition to be "fine", so no work was done. Staff wanted to verify if the condition noted was true, but was unable to do so because the work order did not specify a location.

Findings:

1. VTA's MTN-PR 6150 requires OCS to be inspected for GO 95 compliance annually. From the sampled annual inspections, four annual inspections in year 2013 were skipped, one annual inspection in year 2015 was skipped; one annual inspection was past due in year 2017.
2. VTA's MTN-PR 6150 requires a monthly OCS inspection to be completed with 45 days of issuance. From the sampled monthly inspection records, one monthly inspection in year 2017 was completed 45 days past its issuance date.
3. VTA's MTN-PR 6150 requires a Power Supervisor signing off completed inspections. From the sampled annual inspection records, a year 2015 inspection form was missing; SAP data entry for that inspection indicated a Power Foreperson confirmed the inspection, but not a Supervisor. Due to missing paperwork, Staff was unable to verify supervisory sign off for that inspection.
4. VTA's MTN-PR 6150 requires a Power Foreperson and Power Supervisor signing off completed inspections. From the sampled annual inspection records, a year 2014 manhole inspection had no supervisor or foreperson's signature.
5. A trouble-call work order had no identified location. Although the work order indicated the responded VTA staff found no defect on the scene, Staff wanted to verify if the noted condition was true. Staff was unable to verify the condition because the work order did not have a location.

Comments:

1. VTA should specify its biennial insulator testing method under MTN-PR-6152, including sample type, sample quantity and types of testing to be done. Future testing reports should also include any insulator maintenance recommendations.

Recommendations:

1. VTA should comply with its overall procedure MTN-PR-6150, especially Sections 3.2, 3.3, 4.1, 5.0, and 9.2 for inspecting and documenting its OCS preventative maintenance as required.
2. VTA to ensure all generated work orders have location identified.

2017 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SANTA CLARA VALLEY TRANSPORTATION AUTHORITY (VTA)

Checklist No.	**14-E**	**Element**	**Facilities and Equipment Inspections: Signal Communication, Train Control, Grade Crossing**
Date of Audit	November 07, 2017	**Department(s)**	Way, Power, and Signals
Auditors/ Inspectors	Shane Roberson Sal Herrera	**Persons Contacted**	Joel Milburn, WP&S Superintendent

REFERENCE CRITERIA

1. CPUC General Order 164-D
2. CPUC General Order 143-B
3. CPUC General Order 75-D
4. VTA System Safety Program Plan (SSPP) version 13 dated February 2015
5. VTA System Safety Program Plan (SSPP) version 14 dated February 2016
6. MTN-PR-6205 Grade Crossing Warning System Inspection and Preventive Maintenance
7. MTN-PR-6206 Vital Relay Testing
8. MTN-PR-6204 WPS Power Switch Preventative Maintenance

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Facilities and Equipment Inspections: Signal Communication, Train Control, Grade Crossing

Interview VTA's representative responsible for Wayside Maintenance, and randomly select Preventative Maintenance (PM) records from the past 3 years and determine whether:

1. VTA's Track and Turnout and Crossing Maintenance:
    a. Perform detailed inspections of the mainline switches and crossing's components to determine whether or not they are in compliance with the applicable reference criteria.
    b. Randomly select at least six grade crossings of the mainline. Select two grade crossings for each line
    c. All required PM activities were documented on standardized inspection report forms.
    d. Defects and non-compliances noted on inspection report forms were tracked from recommendation, Corrective Action Plan, and implementation.
2. Vital Relays Preventative Maintenance:

a. Review the records of preventive maintenance, scheduled and unscheduled maintenance activities for vital relays to determine if inspections were performed at the required frequencies as specified in the reference criteria.
b. Determine if inspections were properly documented and corrected in a timely manner.
c. Determine if VTA identified and implemented the acceptable limits for voltage and amperage readings for vital relay inspection records.

FINDINGS AND RECOMMENDATIONS

Activities:
Staff reviewed records and field inspected the following locations:

- 101 On Ramp
- Manila – No defects noted at Manila (82L-0.33)
- Fairchild
- Blossom Hill
- Blossom River
- Winfield

Staff reviewed relay records for the following:

- 2 year vane relays: Younger, Alameda, Chynoweth, Case L03, Case BRWTX, Santa Teresa, and Case 26-29-31-32-34-37.
- 4 year relays inspections: PH 47, OLS, Mountain View, SC 042-059-063A, XC 074 A-B-C, XC085 A-B, Whisman 088

Staff found no defects within the relay record inspections.

Staff field inspected 1-R and 3-R at Chynoweth Station. Staff found no defects within the field inspection at 1R and 3R Switches at Chynoweth Station.

Findings:

1. At 101 On Ramp (82B-11.76) Staff noted tip light flashing. VTA 6205-PR-MTN 4.3.3 MUTCD 8C.04. VTA Inspectors repaired on site. Staff noted 2 track signs on south gate faded and out of compliance. VTA 6205-PR-MTN 4.3.2 FRA 234.245
2. At Fairchild (82B-11.8) Staff noted 2 track signs faded (R15-2P), VTA 6205-PR-MTN 4.3.2 FRA 234.245, and gate lights flickering on South gate. VTA 6205-PR-MTN 4.3.3 FRA 234.217 MUTCD 8C.04. VTA inspectors repaired flickering lights on sight. Staff noted at Fairchild VTA exceeded the 30-day inspection intervals during 2 of the past 12 months. VTA 6205-PR-MTN 4.3 CFR 234 No defects noted for inspection intervals. Refer comments section.

3. At Winfield (82L-0.33) Staff noted no seal in J-box on North gate, GO 128 31.6, and no labels on STATA wires in signal case, FRA 234.239. VTA inspectors corrected seal on site.
4. At Blossom Hill (82L-0.74) Staff noted 12" flashers on South cantilever were not directed in the right direction, VTA 6205-PR-MTN 4.3.3 FRA 234.217 MUTCD 8C.04, and defective conduit seal in signal case, GO 128 31.6. VTA corrected seal in case on site.
5. At Blossom River (82L-0.55) Staff noted flicker in gate flashers indicating a potential short or loose connection, VTA 6205-PR-MTN 4.3.3 FRA 234.217 MUTCD 8C.04, as well as low voltage on south gate while on battery power VTA 6205-PR-MTN 4.5.2 FRA 234.221.

Comments:

VTA had a procedure in place that allowed technicians to exceed the 30-day inspection intervals by 5 days. In the month of November VTA has approved a new policy which address such defect by recognizing a 30, 90, 1 year, 2 years, 4 years, and 10-year inspection has no tolerance when exceeding the testing intervals.

Recommendations:

1. VTA should require all supervisors to randomly check crossing immediately after signal crews have conducted PM's to verify that maintainers are conducting a proper inspection as prescribed in VTA's, CPUC's, and FRA's rules.

2017 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SANTA CLARA VALLEY TRANSPORTATION AUTHORITY (VTA)

Checklist No.	**14-F**	**Element**	**Equipment Maintenance Program: Measurement and Testing Instrumentation**
Date of Audit	November 14, 2017	**Department(s)**	Operations Maintenance Engineering Way, Power, and Signals Vehicle Maintenance System Safety and Compliance
Auditors/ Inspectors	Adam Freeman James Matus Daniel Kwok	**Persons Contacted**	Daniel Hecht, LRV Maintenance Operations Manager Phil Sharp, LR Maintenance Superintendent Brigido Sanchez, Quality Assurance Inspector

REFERENCE CRITERIA

1. CPUC General Order 164-D
2. CPUC General Order 143-B
3. VTA System Safety Program Plan (SSPP) version 13 dated February 2015
4. VTA System Safety Program Plan (SSPP) version 14 dated February 2016
5. NTSB Safety Advisory R-13-1 and R13-2, Use of Jumpers
6. MTN-PR-7202 Precision Measuring Equipment (PME) Calibration Program (old)
7. MTN-PR-8502 Precision Measuring Equipment (PME) Calibration Program (new)

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Facilities and Equipment Inspections: Measurement and Testing Instrumentation
Interview responsible VTA representatives from each department, review appropriate records, inspect equipment storage facilities, and inspect no fewer than eight measuring or testing instruments to determine whether:

1. The selected gauges, micrometers, calipers, torque wrenches, multi-meters, etc. are properly inventoried, stored, distributed for use, calibrated at prescribed intervals, and marked, tagged, or otherwise identified to show current calibration status.
2. The next scheduled testing/calibration due date is shown on each instrument.
3. Tools and instruments requiring calibration are addressed in an appropriate procedure(s)
4. Verify status of 2014 Triennial Review recommendation related to TCAP 2016030023.

FINDINGS AND RECOMMENDATIONS

Activities:

Staff interviewed VTA representative who are responsible for developing and implementing the new tool calibration program, the newly developed program will ensure that all tools used for VTA maintenance purposes are properly calibrated according to the National Institute of Standards and Technology (NIST).

1. Staff reviewed training records related to the implementation of the program which included a Tailgate Summary dated October 25, 2017 and Superintendent Notice dated October 4, 2017, all employees who received the training/notifications signed off as receiving. The most recent audit records reviewed which was last performed on November 6, 2017, identifies that employees were familiar with the calibration procedure.

2. Staff reviewed records related to the most recent audit conducted by the calibration site representative; the program will ensure compliance through random audits performed by the Foreperson, Supervisor, and calibration site representative.

3. Staff verified that there was an established master tool list, which is updated annually, or if new tools are added. Working off the master tool list staff randomly inspected at least eight measuring or testing equipment located in the Light Rail Vehicle maintenance shop, Way Power and Signal and Operations Maintenance Engineering for proper testing and calibration date stickers, all tools that were inspected were verified as being properly inventoried and stored according to the master list that was provided for review. Some of the tools inspected were torque wrenches, multi meters, wheel gauges etc. All tools selected and inspected were found to be within the calibration cycle. All tools that require calibration are being properly identified with an identification number, date of next calibration due and last calibration date. Multiple tools are available for employees to use, ensuring that tools are available even if one becomes lost or damaged.

Tools Reviewed:

Tool #	Description	Due Date	Comment
20051	Fluke Meter	8/21/2018	Tag and calibration sheet information match and are valid
1329-23	Wrench	8/21/2018	Tag and calibration sheet information match and are valid
1329-6F	Micrometer	8/21/2018	Tag and calibration sheet information match and are valid
FDK-70/200-1	Wheel Gauge	8/21/2018	Tag and calibration sheet information match and are valid
FDK-70/200-3	Wheel Gauge	8/21/2018	Tag and calibration sheet information match and are valid

Q0124	Magnehelic Gauge	8/21/2018	Tag and calibration sheet information match and are valid
9020-1	Multimeter	8/21/2018	Tag and calibration sheet information match and are valid
Q0532	Multimeter	8/29/2018	Tag and calibration sheet information match and are valid
FDK-70/200	Wheel Gauge	N/A	Verified item is not on master PME and quarantined for repairs

4. VTA submitted to Staff procedure MTN-PR-8502 Version 2, dated October 4, 2017, for review in response to TCAP 2016030023. Staff is reviewing the document to see if it adequately addresses TCAP 2016030023.

Findings:
None

Comments:
Staff discussed the 2014 Triennial review recommendation related to TCAP 2016030023 and the status of that CAP with VTA. Based on the new/updated tool calibration program MTN-PR-8502 that was developed, Staff reviewed the program, found it acceptable, and feels that there is now a well-established program that will adequately resolve the 2014 findings.

Recommendations:
None

2017 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SANTA CLARA VALLEY TRANSPORTATION AUTHORITY (VTA)

Checklist No.	**14-G**	**Element**	**Facilities and Equipment Inspections: Track and Wayside**
Date of Audit	November 14 & 15, 2017	**Department(s)**	Way, Power, and Signals
Auditors/ Inspectors	John Madriaga Matt Ames Salvador Herrera	**Persons Contacted**	Joel Milburn, WP&S Superintendent William Ekpenyong, Track Supervisor Raymond Pulid III, Track Supervisor (Graveyard shift) Susan Lucero, Transit Safety Officer Erica Casillas, Assistant Transportation Engineer, Maintenance Engineering

REFERENCE CRITERIA

1. CPUC General Order 164-D
2. CPUC General Order 143-B
3. VTA System Safety Program Plan (SSPP) version 13 dated February 2015
4. VTA System Safety Program Plan (SSPP) version 14 dated February 2016
5. MTN-PR-6403 Wayside (Track and Right-of-Way) Inspections
6. MTN-PR-6404 WPS Wayside (Track and Right-of-Way) Maintenance
7. MTN-PR-6419 WPS Inspection and Maintenance of Right-of-Way Fencing

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Facilities and Equipment Inspections: Track and Wayside (ROW)

Interview VTA representatives, conduct field inspections, and review appropriate records for past 3 years to determine whether:

1. Required inspections were performed as per supporting references.
2. Inspections were properly documented and noted, and discrepancies were corrected in a timely manner.
3. Potential hazards found during inspections were tracked from recommendation, Corrective Action Plans, and implementation.
4. Check a sampling of hazards identified during inspections to ensure they are immediately reported, documented, and tracked through resolution.
5. Check a sampling of *"Corrective Action Plans"* to determine timeliness of resolution and ensure follow-up activities are performed, hazard resolution has taken place, and a

measure of the effectiveness of implemented hazard controls has taken place, documented and noted discrepancies were corrected in a timely manner.

FINDINGS AND RECOMMENDATIONS

Activities:
Staff interviewed VTA representatives, reviewed records of inspections and potential hazards, and conducted field inspections.

1. Staff determined that required inspections were performed as per supporting references.
2. Staff determined that inspections were documented, noted, and that some discrepancies were corrected in a timely manner.
3. Staff determined that potential hazards found during inspections were generally not tracked from discovery to implementation.
4. Staff checked a sampling of hazards identified during inspections and determined that some were not tracked through resolution.
5. Staff checked a sampling of *"Corrective Action Plans"* and determined that some noted discrepancies were corrected in a timely manner.

Findings:

1. Staff noted a potential tripping hazard within walkways due to holes and uneven surfaces during an inspection of Guadalupe yard and Wye.

Comments
Potential hazards should be tracked through implementation of corrective action plans.

Recommendations:

1. VTA should comply with General Order 118A, Standard 6, which requires walkways in yards to provide a reasonable regular surface.

2017 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SANTA CLARA VALLEY TRANSPORTATION AUTHORITY (VTA)

Checklist No.	**15-A**	**Element**	**Maintenance Audits and Inspections: Rail Vehicles**
Date of Audit	November 7-9, & 13, 2017	**Department(s)**	Vehicle Maintenance (including Historic Trolleys) Operations Maintenance Engineering
Auditors/ Inspectors	Adam Freeman James Matus John Madriaga Matthew Ames	**Persons Contacted**	Daniel Hecht, Ops Manager LRV Maintenance Erica Casillas, Asst. Transportation Engineer Phil Sharp, LR Equipment Superintendent Bruce Turner, Transit Safety Officer Susan Lucero, Transit Safety Officer Manjit Khalsa, Sr. Systems Engineer

REFERENCE CRITERIA

1. CPUC General Order 164-D
2. CPUC General Order 143-B
3. VTA System Safety Program Plan (SSPP) version 13 dated February 2015
4. VTA System Safety Program Plan (SSPP) version 14 dated February 2016
5. VTA MTN-PR-8501 Light Rail Maintenance Division Hi-Rail and On-Track Equipment Operation, versions 1 and 2
6. VTA MTN-PR-5102 Light Rail Vehicles with Hazardous Defects
7. VTA MTN-PR-5120 LRV Wheel Inspections and Reprofiling
8. VTA MTN-PR-5139 A-PM Inspection KI Light Rail Vehicles
9. VTA MTN-PR-5140 B-PM Inspection KI Light Rail Vehicles
10. VTA MTN-PR-5141 Major Inspection "C" Procedure
11. VTA MTN-PR-5142 Overhaul I "D" Inspection
12. VTA MTN-PR-5143 Overhaul II "E" Inspection
13. VTA MTN-PR-5149 Daily Inspection KI Light Rail Vehicles
14. VTA MTN-PR-5154 Light Rail Vehicle Testing Procedure
15. VTA MTN-PR-5156 Preventive Maintenance (PM) Scheduling for Light Rail Vehicles
16. VTA MTN-PR-5158 Light Rail Vehicles Maintenance Work Orders
17. VTA MTN-PR-5159 Light Rail Vehicles Placement and Status Report

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Maintenance Audits and Inspections: Rail Vehicles

1. Perform detailed inspections of VTA's revenue (LRVs & Historic Trolleys) and non-revenue rail vehicles to determine if the following components are properly and adequately maintained:
    a. Axle-mounted gearbox
    b. Truck, axle, and wheel assemblies
    c. Brake systems
    d. Door assemblies
    e. Lighting
    f. Passenger doors
    g. Passenger component and safety appliances
    h. Public address and intercom systems
2. Determine whether the cars are in compliance with all applicable references based on record review and inspections.
3. Randomly select 10% of the fleet and review the maintenance records for those vehicles for the past 3 years. Check to see that:
    a. The preventive maintenance (PM) performed was consistent with the transit agency's maintenance program;
    b. The PMs were conducted on schedule;
    c. The records were properly documented with the necessary review and approval
    d. Noted defects were corrected in a timely manner
    e. The proper type of PM was conducted according to the maintenance cycles promulgated in the maintenance program.
4. Randomly review UOR Trend Analysis by System and check failure history and hazard tracking log for the previous three years. Note if a correlation between the PM maintenance cycle and corrective action/hazard reports exist to ascertain possible PM procedural deficiencies.
5. Review corrective action plan to monitor and note repetitive failures that might indicate mechanic error and/or training requirement, ineffective procedure, and/or material deficiencies.
6. Randomly interview maintenance personnel, including both supervisors and mechanics, to verify that they have available the most current maintenance procedures and that they understand and have been properly instructed on using the information.
7. Ask these personnel if they have access to the testing and measurement equipment or devices that may be specified by inspection and testing procedures.
8. Ask these personnel if they know of any immediate safety concerns or hazards that are the result of poor maintenance activities.
9. Interview maintenance supervisors to verify how they communicate these issues to the VTA's Safety Department and other departments as required.
10. Verify if VTA has performed their major change-out/overhaul of safety critical systems and or structure integrity of the LRV(s) as per maintenance procedures.

11. Randomly select a minimum of three Hi-rail maintenance vehicles to review the completed Preventative Maintenance (PM) and unscheduled maintenance records associated with each car selected over the last three years to determine whether or not:
    a. The vehicles were inspected during preventative maintenance at the required frequencies as specified in the referenced criteria.
    b. The records were properly documented with the necessary review and approval.
    c. Noted defects were corrected in a timely manner.
    d. Any necessary adjustments or modifications to the rail system are tracked and monitored for performance and safety.

FINDINGS AND RECOMMENDATIONS

Activities: Staff interviewed VTA and the following was noted.

1. Staff performed detailed inspections during the day and the peak evening hours as vehicles (Light Rail Vehicles (LRVs), Historic Trolleys, and Non-Revenue Vehicles) returned to the shop after running into revenue service at VTA's Guadalupe maintenance facility. Staff observed the Daily Inspection (DI) cleaning and inspecting tasks that are performed on each vehicle. Reviewed preventative maintenance records, interviewed LRV maintenance supervisors and mechanics to determine if all the required tools and maintenance procedures are available and easily accessible to perform their work. These detailed inspections were done to determine if vehicles are being properly maintained in compliance with VTA's SSPP, preventative maintenance manuals, and CPUC General Orders.
2. Staff inspected the following revenue light rail vehicles; 987, 955, 986, 973, 944, 930, 993, & Trolley #2001. All the light rail vehicles that were inspected were found to be in compliance with all applicable reference criteria with the exception of the ongoing coupler overhaul program. Staff also reviewed maintenance records regarding light rail vehicle # 973 & 955 for the years 2015, 2016, and 2017.
3. Staff met with VTA represenatives responsible for LRV maintenance and randomly selected the following revenue light rail vehicles and reviewed maintenance records for the past 3 years; 906, 915, 921, 937, 945, 950, 961, 974, 988, 993. The records that were reviewed included the following preventative maintenace inspections; PM-A, B, C, D, E, & F, Daily Inspections, Light Rail Vehicle testing procedures and work orders associated with each repair. Staff found that all PM's were completed within the scheduled intervals according to VTA's, PM scheduling program and in accordance with the recommendation by the car builder and component vendors. Staff reviewed recently completed F-PM records which include major component overhaul, each vehicle is tested in accordance with VTA's Light Rail Vehicle testing proceure (MTN-PR-5154), this is a major full evaluation test after an age cycle major overhaul as part of the routine maintenance.
4. Staff reveiwed a random sampling of the most recently completed monthly Unusal Occurrence Report (UOR), no correlation was identified between the preventative

maintenance program or any procedural deficiencies, Staff discussed how if there were any correlation found in the UOR it could possibly lead to maintenance procedural changes, for example maintenance bulletins or special instructions related to maintenance procedures.

5. Staff inspected the following non-revenue light rail vehicles; 21651, 29240, 21624, 21684, 29278, 32242. Staff found that the hi-rail vehicles are not being properly maintained, several defects were noted related to these vehicles which included; overall vehicle cleanliness, inoperative back up alarms, burnt out lights, pins out of place, first aid kits, cut seat belts, fusees, tires, etc. As staff was inspecting these vehicles VTA immediatelly red tagged several vehicles due to the inspection findings. (See findings, comments & recommendations related to hi-rail vehicle inspections)

Findings:

1. Hi-rail vehicles are not being properly maintained, daily inspections or pre-trip inspections are not being completed.

Comments:

1. Hi-rail vehicles were not properly maintained per VTA vehicle inspection checklist (TTT-RA-1267). Hi-rail vehicle inspection created March 2015 is not being filled out on any vehicles and Hi-rail vehicle maintenance records are incomplete. This is a required safety standard created by VTA safety. Vehicles should not be operated without daily inspections being completed. System Safety and Compliance Department needs to perform compliance checks on these daily inspections as required. Supervisors need to comply with this dedicated inspection form and have compliance checks performed on daily inspections. Supervisors need to log all daily inspections in a folder for each vehicle. VTA has documented their own non-compliance to vehicle maintenance. Hi-rail vehicles inspected were 21651, 29240, 21624, 21684, 29278, and 32242.
2. Trolley #2001 Operators pre-trip inspection form needs to document actual air brake test or at the minimum set and release. This is part of the trolley operators training and procedures.
3. Trolley shop needs general cleanup throughout the entire shop.

Recommendations:

1. VTA must institute a systematic inspection and maintenance program specifically designed for Hi-rail vehicles maintenance, this program should outline the preventative maintenance intervals required based on industry standards. Additionally, all required accessories on the vehicles shall be inspected and maintained so that they are in safe working condition.

2017 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SANTA CLARA VALLEY TRANSPORTATION AUTHORITY (VTA)

Checklist No.	**15-B**	**Element**	**Maintenance Audits and Inspections: Traction Power System**
Date of Audit	November 15, 2017	**Department(s)**	Way, Power, and Signals
Auditors/ Inspectors	Steve Espinal Jamie Lau	**Persons Contacted**	Joel Milburn, WP&S Superintendent Gurpreet Gill, WP&S Supervisor

REFERENCE CRITERIA

1. CPUC General Order 95
2. CPUC General Order 164-D
3. CPUC General Order 143-B
4. VTA System Safety Program Plan (SSPP) version 13 dated February 2015
5. VTA System Safety Program Plan (SSPP) version 14 dated February 2016
6. MTN-PR-6151 Inspection of Way, Power, and Signal Substations

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Maintenance Audits and Inspections: Traction Power System
Interview VTA representatives and select at least one section of rail traction power system at random from each of the following areas:

1. Guadalupe Line (Santa Teresa and Almaden)
2. Tasman West Line (Mountain View)
3. Tasman East Line (Alum Rock)

For each section, review the appropriate documentation to determine whether:
1. The rail traction power system is inspected and maintained in compliance with applicable standards.
2. Substations and are inspected and maintained in compliance with applicable standards.

Perform a visual inspection of one substation for each of the above areas to determine whether they are in compliance with VTA standards and are in a state of good repair. Perform a detailed inspection of substation components.

Review VTA's stray current program to determine whether:

1. VTA is active in mitigating the effects of stray current on its own and surrounding structures.
2. VTA has procedures in place to identify and correct hazards caused by stray current.
3. Any hazards identified have been addressed and tracked through Corrective Action Plans to completion.

FINDINGS AND RECOMMENDATIONS

Activities:

Staff inspected substations and associated overhead catenary systems including:

Substation 27 (647 North Capital) Tasmen East line

- Fire Extinguishers inspections current
- Phone system was functioning
- The substation was very clean and dust free. Dust can trigger arching.
- Log book is filled in weekly and inspections are detailed.
- No issues seen on overhead catenary system.

Substation 9 South line

- Phone was broken
- Fire extinguishers inspections were current.
- The substation was clean and dust free.
- Long book filled in and work is detailed.
- No issues seen with the overhead catenary system.

Substation 2 North Guadalupe

- Phone was broken
- Fire extinguishers inspections were current.
- The substation was clean and dust free.
- Long book filled in and work is detailed.
- No issues seen with the overhead catenary system.

Substation 3 North Guadalupe

- Fire Extinguishers inspections current
- Phone system was functioning
- The substation was very clean and dust free. Dust can trigger arching.
- Log book is filled in weekly and inspections are detailed.
- No issues seen on overhead catenary system.

PG&E was contacted prior to the audit to determine if SCVTA DC traction power system stray current is interfering with PG&E piping system. PG&E determined there are no issues with VTA traction power system that rises to the level of concern.

Findings:

1. Phones did not work in substation 2 and 9.

Comments:

None.

Recommendations:

1. VTA should inspect the phone(s) in each of the substations and repair broken phones in a timely manner.

2017 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SANTA CLARA VALLEY TRANSPORTATION AUTHORITY (VTA)

Checklist No.	**15-C**	**Element**	**Maintenance Audits and Inspections: Train Control and Signal Systems Maintenance**
Date of Audit	November 07, 2017	**Department(s)**	Way, Power, and Signals
Auditors/ Inspectors	Shane Roberson Salvador Herrera	**Persons Contacted**	Joel Milburn, WP&S Superintendent

REFERENCE CRITERIA

1. CPUC General Order 164-D
2. CPUC General Order 143-B
3. VTA System Safety Program Plan (SSPP) version 13 dated February 2015
4. VTA System Safety Program Plan (SSPP) version 14 dated February 2016
5. MTN-PR-6205 Grade Crossing Warning System Inspection and Preventive Maintenance
6. MTN-PR-6207 Ten Year Cable Inspection & Insulation Resistance Test

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Maintenance Audits and Inspections: Train Control and Signal Systems Maintenance
Perform detailed inspections of the signal system components to determine whether or not they are in compliance with applicable reference criteria. Select at least one track section at random from each of the following areas to inspect, including at least one at-grade section, one and one aerial section (review records for past 3 years and conduct field inspections):

1. Vasona Line
2. Guadalupe Line (Santa Teresa and Almaden)
3. Tasman West Line (Mountain View)
4. Tasman East Line (Alum Rock)

FINDINGS AND RECOMMENDATIONS

Activities:
Staff reviewed 10-year Cable inspections records for Vasona, Guadalupe, and Tasman.

Findings:
Staff noted at the below stated locations, 10 year cable inspections failed testing:

- Evelyn Station-B135 dated May 16, 2012
- Central Expressway-XC074 to Gate Mech C dated June 8, 2012

- Whisman Station-PED Crossing B dated May 17, 2012
- Middlefield Station-B122 PED Crossing B dated May 21, 2012
- Middlefield Station-SC117 to Light Assembly A dated May 21, 2012
- 101 On Ramp-Gate Mech A dated May 23, 2012
- Innovation Way East-SC244 to Light Assembly D dated June 1, 2012
- Lockheed Interlocking-LH250 to SC244 to Ped Xing A dated June 1, 2012
- Lockheed Interlocking-LH250 to Ped Xing B dated June 1, 2012
- Lockheed Interlocking-LH250 to Ped Xing D dated June 1, 2012

When Staff requested repair/work order and retests records of said location, VTA could not provide them. VTA openly admitted they allowed said defects to go unchecked. VTA 6207-PR-MTN FRA 234.267, 236.108

See comments below.

Comments:

It was noted after further investigation, VTA informed the Contractor to complete the repairs to the underground cables. Following this, VTA's union filed a grievance. VTA responded by canceling the order with the contractor. VTA did not pursue the repairs again until 2014 at which time the new Superintendent, Wayside Power Signal Superintendent (hired in 2013), came upon the report which still had not been signed off by a VTA Management. The new Superintendent signed the reports, filed them, and sent an email dated Thursday, October 02, 2014 6:32 AM to both Signal Supervisor, and Way Power and Signal Supervisor requesting more information and repairs be completed if they had not been as of yet. There was no other trail from there. The Superintendent did not follow up there after, nor did management create a work order.

As of November 9, 2017, VTA immediately generated a W/O and assigned a crew to retest all failed cables. CPUC Staff requested a corrective action plan no later than November 13, 2017.

VTA should not have canceled a W/O based on a grievance with the union, instead management should have reassigned the W/O to the signal crew. VTA management should have not signed the failed reports until all corrections had been made. Signing reports is acknowledgement of completion.

Safety starts at the top, and management allowed external issues to interfere with the safe operations of the system by deliberately deciding to forgo immediate repairs when regulations clearly state; "Subject to paragraph (d) of the section, when insulation resistance of wire or cable is found to be less than 500,000 ohms, prompt action shall be taken to repair or replace the defective wire or cable. Until such defective wire or cable is replaced, insulation

resistance test shall be made annually. (d) A circuit with a conductor having an insulation resistance of less than 200,000 ohms shall not be used." (VTA MTN-PR-6207 7.3, FRA Title 49 CFR 234.267 and 236.108.

Within this regulation VTA could have conducted annual testing if they had recorded conductors having an insulation resistance of more than 200,000 ohms. VTA did not record any resistance more than 200,000 ohms. Records clearly and definitively stated conductor Fail. With this information management should have, without undue delay, replaced all wire or cable regardless of outside influence.

Recommendations

1. VTA should implement a policy that does not allow external issues to interfere with the safe operations of the system. When Way Power and Signal identifies a safety related defect they should have the authority to make the appropriate corrections without undue delay.

2017 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SANTA CLARA VALLEY TRANSPORTATION AUTHORITY (VTA)

Checklist No.	**15-D**	**Element**	**Maintenance Audits and Inspections: Tracks and Turnouts**
Date of Audit	November 13, 2017	**Department(s)**	Way, Power, and Signals
Auditors/ Inspectors	John Madriaga Salvador Herrera Matthew Ames	**Persons Contacted**	Joel Milburn, WP&S Superintendent William Ekpenyong, Track Supervisor Raymond Pulid III, Track Supervisor (Graveyard shift) Lynn McFadden, Transit Safety Officer Judy Kaur, Power Supervisor

REFERENCE CRITERIA

1. CPUC General Order 164-D
2. CPUC General Order 143-B
3. VTA System Safety Program Plan (SSPP) version 13 dated February 2015
4. VTA System Safety Program Plan (SSPP) version 14 dated February 2016
5. MTN-PR-6403 Wayside (Track and Right-of-Way) Inspections
6. MTN-PR-6404 WPS Wayside (Track and Right-of-Way) Maintenance
7. MTN-PR-6405 Track Geometry Standards
8. MTN-PR-6406 Inspection and Maintenance of Ballast
9. MTN-PR-6407 Inspection and Maintenance of Ties
10. MTN-PR-6408 Inspection and Maintenance of Rail
11. MTN-PR-6409 Maintenance of Fastenings
12. MTN-PR-6410 Inspection and Maintenance of Joints
13. MTN-PR-6411 Inspection and Maintenance of Continuous Welded Rail (CWR) Track
14. MTN-PR-6415 Inspection and Maintenance of Turnouts and Diamond Crossings
15. MTN-PR-6416 Inspection and Maintenance of Rail Crossings

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Maintenance Audits and Inspections: Tracks and Turnouts

Review VTA's records of preventative maintenance, schedule and unscheduled maintenance activities for two separate 6 month periods in the past 3 years:

1. Track Inspection:

a. Randomly select at least two separate track inspection reported areas to determine whether:
    i. Mainline tracks, yard leads, and transfer tracks were inspected at the proper frequency.
    ii. Inspections were properly documented and noted defects were corrected in a timely manner and tracked until completion.
b. Randomly select at least two separate recorded geometry car inspection reports to determine whether:
    i. Mainline tracks, yard leads, and transfer tracks were inspected at the proper frequency.
    ii. Inspections were properly documented and noted defects were corrected in a timely manner and tracked until completion.
c. Review VTA internal rail defect reports to determine whether:
    i. Mainline tracks, yard leads, and transfer tracks were inspected at the proper frequency.
    ii. Inspections were properly documented and noted defects were corrected in a timely manner and tracked until completion.

2. Turnout Inspection:
    a. Randomly select at least two separate turnout inspection reported areas to determine whether:
        i. Mainline tracks, yard leads, and transfer tracks were inspected at the proper frequency.
        ii. Inspections were properly documented and noted defects were corrected in a timely manner and tracked until completion.

Perform detailed inspections of mainline tracks to determine whether or not they are in compliance with applicable reference criteria. Select at least one track section at random from each of the following areas to inspect, including at least one at-grade section, tunnel section, and one aerial section:

1. Vasona Line
2. Guadalupe Lines (Almaden and Santa Teresa)
3. Tasman East Line (Alum Rock)
4. Tasman West Line (Mountain View)
5. Guadalupe Yard

FINDINGS AND RECOMMENDATIONS

Activities:

Staff conducted multiples Track and Track Records Inspections over a two week period during various hours of operation of many locations.

1. Track Inspection:

a. Staff conducted the following track inspections: Hi-rail inspection of the Vasona Line, walking inspection of the Guadalupe Yard and Hamilton Station, and Train Ride inspection of all Mainlines.
    i. Staff determined that track inspections were conducted at the proper frequencies.
    ii. Staff determined that track inspection required information were recorded properly; All noted defects were not tracked until completion.
b. Staff determined that Geometry Car Inspections were recorded for a random sample of tracks.
    i. Staff determined that Geometry Car inspections were conducted at the proper frequencies.
    ii. Staff determined that Geometry Car inspection required information were recorded properly and noted defects were corrected in a timely manner and tracked until completion.
c. Staff determined that Internal Rail Defect Inspections were recorded for a random sample of tracks.
    i. Staff determined that Internal Rail Defect inspections were conducted at the proper frequencies.
    ii. Staff determined that Internal Rail Defect inspection required information were recorded properly and noted defects were corrected in a timely manner and tracked until completion.

2. Turnout Inspection:
    a. Staff conducted the following turnout inspections: walking inspection of the Guadalupe Yard and multiple mainline crossover locations, and Train Ride of all Mainlines.
        i. Staff determined that turnout inspections were conducted at the proper frequencies.
        ii. Staff determined that turnout inspection required information were recorded properly; All Noted defects were not tracked until completion.

Staff conducted detailed inspections of Guadalupe Yard, Tasman East Line, Tasman West Line, and Hamilton Station (aerial structure, structure inspections were conducted in accordance with other Checklists).

<u>Findings:</u>

1. Staff noted the following defective conditions during Track and Turnout inspections:
    a. Guadalupe Yard and Switches - unsecure heel blocks, broken washers, loose adjustable rail braces, loose joint bars, loose switch rods and broken bond wire.
    b. Various Mainline Curves – broken restraining rail and lateral movement of track (misalignment).

c. Cottle Crossover - loose bolts, open switch point, broken washers.

2. Track and Turnout inspection reports do not describe the defect, location, and any actions taken to correct the problem and/or to protect train traffic.
3. Defective conditions found during inspections were not tracked until completion.

Comments:

1. VTA should verify that Track/Turnout Inspections are being performed properly and note all defects and deviations found.
2. VTA should track remedial actions in order to ensure that defective conditions are remediated correctly and in a timely manner.
3. Records of periodic track inspections should note defects and deviations from the adopted standards along with the corrective action taken.

Recommendations:

1. VTA should comply with MTN-PR-6403 through 6411, 6415 & 6416 in order to properly describe the defect, location, action taken to correct defective conditions noted during inspections, and track found defects during inspections until completion.

2017 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SANTA CLARA VALLEY TRANSPORTATION AUTHORITY (VTA)

Checklist No.	**15-E**	**Element**	**Maintenance Audits and Inspections: WP&S Audit Program**
Date of Audit	November 17, 2017	**Department(s)**	Way, Power, and Signals System Safety and Compliance
Auditors/ Inspectors	Arun Mehta Jamie Lau	**Persons Contacted**	Joel Milburn, WP&S Superintendent Brigido Sanchez, QA and Warranty Specialist Susan Lucero, Transit Safety Officer Bruce Turner, Transit Safety Officer

REFERENCE CRITERIA

1. CPUC General Order 164-D
2. CPUC General Order 143-B
3. VTA System Safety Program Plan (SSPP) version 13 dated February 2015
4. VTA System Safety Program Plan (SSPP) version 14 dated February 2016
5. VTA MTN-PR-6801 WPS Quarterly Audit version 1
6. VTA MTN-PR-6801 WPS Semi-Annual Audit version 2

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Maintenance Audits and Inspections: WP&S Audit Program

Interview VTA personnel and review records for the past 3 years to determine if:

1. The audit it being performed at the required frequencies stated in the procedure.
2. All WP&S Department is being audited under this program
3. Audit reports are properly maintained
4. Corrective Action Plan are well documented
5. Follow up of Corrective Action Plan takes place in a timely manner until completion

FINDINGS AND RECOMMENDATIONS

Activities:

Staff interviewed the VTA representatives as suggested in this checklist, and conducted the following activities:

1. VTA Way, Power, and Signals (WP&S) Superintendent provided a background to CPUC Staff of their activities since the 2014 CPUC Triennial Audit. Based upon CPUC findings and resulting recommendations, VTA WP&S staff met with the VTA Quality Assurance lead auditor and decided to modify their SOP MTN-PR-6801 from the original **Quarterly Audit** version 1 to a more manageable, **Semi-Annual Audit** version

2, in view of their inadequate staffing. The subject SOP (VTA MTN-PR-6801, V2) was adopted on June 3, 2015. WP&S Internal audits are performed by the Quality Assurance Specialist and by System Safety Department. New update of SOP also added a 4 years of record retention requirement. Per the new SOP, each of the four departments (Track, Power, Signals and Station Maintenance) will be audited at least once every calendar year.

Staff found that no internal audits were performed in CY 2015 in violation of both the old and new versions of the SOP MTN-6801. VTA WP&S Superintendent cited lack of manpower and preparations for Superbowl 2015 as being the main reasons for this violation.

2. CPUC Staff found that the WP&S Department caught up with the annual schedule starting 2016 and 2017, as evidenced by the records:
   2016 audits:
   - May 31-June 1, 2016 – Power Department audit, closed out in Aug 10, 2016 (as all internal audit CAPs closed).
   - June 1-June 6, 2016 – Station Maintenance Department audit, closed on Aug 10, 2016.
   - August 22, 2016 – Track Department audit. A follow-up meeting on Oct 27, 2016. Closed on Jan 25, 2017.
   - August 25, 2016 – Signal Department audit. Various follow up meetings to resolve CAPs. Closed on 11/3/2017.

   2017 audits:
   - February 27, 2017 – Station audit, various follow up meetings, closed on 10/31/2017.
   - February 28, 2017 – Power audit, various follow up meetings, closed on 9/8/2017.
   - September 11, 2017 – Signal audit. Still open.
   - September 12, 2017 – Track audit. Closed on 9/28/2017.

   In summary, no required audits were done in 2015. In 2016 and 2017 all required WP&S internal audits for 4 departments were performed, as required, as discussed in item 1 above.

3. Since 2015, internal audits are created, scheduled and monitored using a new computer software system based on SAP. SAP reminds the Superintendent of the audit due dates per the SOP schedule. Starting with 2015, per the updated SOP MTN-6801 procedure, records are required to be maintained for a minimum of 4 years. Staff found that VTA has records dating back to 2012 at the time of this audit. Staff did an over-the-shoulder verification on Joel's computer to verify that such records and audit reports are electronically maintained on Engineering Shared Drive.

4. Staff reviewed all eight internal audit reports from 2016 and 2017 confirming all audit findings have CAPs identified and documented on the reports.

5. Section 4.5.3 of SOP VTA MTN-PR-6801 version 2 requires all CAPs to be completed within 14 days. Some of the CAPs get closed almost on immediate basis, but most of them were not being completed within the short timeframe of 14 days, violating the SOP 6801.

   Staff selected three WP&S internal audit program reports to verify if findings had associated CAPs and being corrected in a timely manner:
   - Feb 2017 Station Maintenance Internal Audit – CAPs required repair were closed with pictures as proof. There was a finding related to signal department; Staff verified auditor sent an email to signal department for repair completion.
   - Feb 2017 Power Internal Audit – all CAPs were closed and dated. Staff randomly checked CAPs for Item 3, c2, c3, and c4 findings, and found they were corrected as noted. c2 was a finding for missing dates for Oct 2016 OCS monthly inspection for Tasman West; c3 was missing maintainer and supervisor signatures for Lick Mill to Champion July 2016 annual inspection; c4 was missing supervisor signature for Crossman to Fair Oak Oct 2016 annual inspection.
   - May 31, 2016 Power Internal Audit – all CAPs were closed and dated. Staff randomly checked CAP for Item 3b, WO#30500537197. The finding was documented on the 2016 OCS annual inspection for Curtner to Tamien section for a manhole switch with various broken contact wire insulators. The CAP for this finding was to replace insulators. Staff verified on record the work was completed.

   However, CPUC Staff reviewed another example of a finding CAP which was not completed within the 14 day limit. This finding was in the same Station Maintenance Audit Report as above, for the audit completed on February 27, 2017. There was an audit finding on page 19 related to "Elevator flooring is flaking off at the bull nose ends" with a picture of the damaged flooring. The CAP for this finding states "Proposal was submitted by Accurate Poly Coatings for the floor repairs that VTA have reviewed and approved along with other elevators with the same floor issue". This CAP was shown to be closed on August 21, 2017. When Staff asked if the flooring was repaired by that date, VTA answered, "No." The Superintendent and the auditors decided to show the CAP as "closed" once the proposal for the repair was approved and signed by the VTA Procurement Department, as it was out of the hands of the WP&S. CPUC Staff reminded VTA that this was erroneous and should not be done. A CAP should not be closed until the actual repair has been completed. In this case the work has not even started as of the date of this CPUC Triennial Audit and the work is expected to be completed around the end of the First Quarter of 2018.

In view of 90% of the CAPs missing the 14-Day completion date specified in Section 4.5.3 of the SOP 6801, Staff suggests VTA to modify this 14-Day time limit to a more manageable time limit. Further, a CAP should not be closed until it is completed.

Findings:

1. VTA is missing the CAP Completion dead line of 14-Days as specified in Section 4.5.3 of SOP MTN-PR-6801 WPS Semi-Annual Audit version 2, in about 90% of the cases. Further, the WP&S staff and the internal auditors erroneously closed a CAP, reasoning that once it's out of their hands, it can be closed. In this case, the proposal to repair the issue was approved by VTA Procurement, but the work did not even start.

Comments:

1. None

Recommendations:

1. VTA WP&S Management should immediately proceed to modify Section 4.5.3 of SOP MTN-PR-6801 WPS Semi-Annual Audit version 2 to a more manageable and realistic time period for CAP completion than the current period of 14 days. Further, WP&S should not close CAPs until the work is completely done.

2017 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SANTA CLARA VALLEY TRANSPORTATION AUTHORITY (VTA)

Checklist No.	**16-A**	**Element**	**Training and Certification Programs: Operators, Controllers, and Foremen**
Date of Audit	November 13, 2017	**Department(s)**	**Light Rail Technical Training** **Service Management**
Auditors/ Inspectors	Michael Rose Debbie Dziadzio Richard Fernandez	**Persons Contacted**	Juan Delgado, Management Analyst Naunihal Singh, Asst. Superintendent Larry Bajwa, Transportation Superintendent Abrar Ahmad, Superintendent, Serv. Mngt. Diego Carrillo, LR Tech Training Supervisor Gurpreet Singh, Asst. Superintendent

REFERENCE CRITERIA

1. CPUC General Order 164-D
2. CPUC General Order 143-B
3. VTA System Safety Program Plan (SSPP) version 13 dated February 2015
4. VTA System Safety Program Plan (SSPP) version 14 dated February 2016
5. Light Rail Operating Rulebook
6. VTA SOP 1.5 Operator Certification
7. VTA SOP 1.9 Light Rail Operator Retraining/Refresher
8. OCC Training Policy

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Training and Certification Programs: Operators, Controllers, and Foremen

1. Select at least five (5) employees at random in each of the following classifications:
   - Train Operator
   - Train Controller
   - Light Rail Supervisor
   - Way, Power and Signal workers
   - Motormen/Conductors of Historic Streetcars
   - Mechanics

2. Review training, certification, and recertification records of the selected employees related to RWP, PED, and other specific job required training to determine whether:
3. All personnel successfully completed initial training programs, and any discrepancies were addressed and resolved.

4. All personnel have been retrained and recertified at the correct frequency and are currently certified to perform their duties according to the procedures.
5. Verify that a process for maintaining and accessing employee training records is in place.
6. Verify that categories of safety-related work requiring training and certification have been identified.
7. Verify that employee and contractor job classifications requiring initial and refresher training and certification have been identified.
8. Verify that VTA has a process is in place to assess compliance with its training and certification requirements.
9. Verify that corrective actions taken to discipline employees and contractors for failure to follow established procedures once trained and certified are established and consistent.

FINDINGS AND RECOMMENDATIONS

Activities:
CPUC Staff requested employee rosters for Train Operators, Train Controllers, Field Supervisors, WP&S workers, Motormen/Conductors of Historic Streetcars and Mechanics and selected 5 employees from each roster for review. CPUC Staff reviewed employee training records to determine compliance to required initial training and correct frequency recertification in Operating Rules, RWP, PED, and discipline specific training as per VTA SSPP and SOPs.

CPUC Staff reviewed SOP 1.5 Document Number LRA-PR-411.5 version # 07, section 4.2.1 which advises that LR employees who operate any rail-borne equipment are required to be recertified annually. CPUC Staff then reviewed VTA SSPP dated 2/2016 version 14, Element 5 (pg. 13 of 61) which advises Technical Training Department provides initial certification and/or safety training as well as recertification **once per calendar year** to all light rail personnel who either work on the main line and/or operate any rail vehicle upon any portion of the light rail system. However, SSPP Element 13 advises **annual** recertification for all rail certified employees.

CPUC Staff reviewed handouts that included OCC Rail Control Supervisor Training, 2016 Recertification Topics, OCC Recertification – 2016 Outline, 2016 OCC Recertification Syllabus, and Certification by Craft matrix regarding RWP training,

CPUC Staff reviewed the Technical Training excel spreadsheet/database and learned how the database is maintained to track employee training and recertification and modified on an as-needed basis.

By interviewing representatives from OCC, Training Department, Mechanic, WP&S, CPUC Staff learned discipline occurs as per VTA Progressive Discipline Policy and SOPs.

Findings:

1. While reviewing 30 personnel training records for VTA Operating Rules, CPUC Staff found the time frequencies for recertification to be inconsistent, i.e. Employee #12029 – October 20, 2015, December 20, 2016. Recertification occurred past 12 months in accordance to VTA's SSPP Element 13. However, it is not in compliance with VTA SOP 1.5, which requires annual recertification.

Comments:

While reviewing VTA's 2015 and 2016 SSPP versions, Staff learned that Service Management Training responsibilities had been removed in Element 5 System Description and Organization Structure and Element 13 Training and Certification. Staff suggests putting back the original verbiage regarding Service Management Training responsibilities into VTA's SSPP.

Staff learned that the passing score requirement for OP rules and recertification is 90% and RWP passing score is 70%. Industry standards require 80% passing score.

Recommendations:

1. VTA should ensure training verbiage is consistent between SSPP Element 13 and SOP 1.5.

2017 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SANTA CLARA VALLEY TRANSPORTATION AUTHORITY (VTA)

Checklist No.	**16-B**	**Element**	**Training and Certification Programs: Maintenance Employees and Contractors**
Date of Audit	November 14, 2017	**Department(s)**	**Light Rail Maintenance Training**
Auditors/ Inspectors	Michael Rose Debbie Dziadzio Richard Fernandez	**Persons Contacted**	Monte Bjerke, Maintenance Training Instructor Greg Bushner, Maintenance Training Instructor George Sandoval, Operations Manager, MOW Julia Macke, Sr. Management Analyst

REFERENCE CRITERIA

2. CPUC General Order 164-D
3. CPUC General Order 143-B
4. VTA System Safety Program Plan (SSPP) version 13 dated February 2015
5. VTA System Safety Program Plan (SSPP) version 14 dated February 2016
6. VTA MTN-PR-6800 WPS Training Program
7. VTA MTN-PR-7401Light Rail Training & Certification Requirements

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Training and Certification Programs: Maintenance Employees and Contractors

1. Select at least three (3) employees at random in each of the following classifications:
   - Track Workers
   - Track Equipment Operators
   - Overhead Line Workers
   - Electro-Mechanics / Electronic Technicians
   - Light Rail Maintenance Foreperson
   - Substation Maintainers
2. The training program standards and course implementation are reviewed and modified as necessary to meet the requirements of the reference criteria.
3. Review the training and certification records for the last three years to determine whether or not:
   a. The employee has received the required training to perform his/her duties
   b. Documents are on-file to show that the employee is qualified to perform his/her duties

c. The employee has been re-certified at the required frequency

4. Verify that VTA has a process is in place to assess compliance with its training and certification requirements.
5. Verify that corrective actions taken to discipline employees and contractors for failure to follow established procedures once trained and certified are established and consistent.

FINDINGS AND RECOMMENDATIONS

Activities:
CPUC Staff interviewed VTA personnel and the following was noted.
For #4 Please refer to checklist 13-C
For #5 Please refer to checklist 13-B

CPUC Staff randomly selected 3 employees from the following crafts:

- Track Workers
- Contractors
- Overhead Line Workers
- Electro-Mechanics / Electronic Technicians
- Light Rail Maintenance Foreperson
- Substation Maintainers

Records were reviewed to ensure employees received the required training to perform their duties, those documents were on-file to show the employees were qualified to perform their duties and that the employees were re-certified at the required frequency.

Through the interview process with VTA LR Maintenance Trainers, CPUC Staff learned that program and course standards are reviewed and modified frequently by the Training Department, although there is no formal input from VTA Management as per SOP MTN-PR-5001 LR Maintenance Rules and Procedures Development, Section 3.1

CPUC Staff reviewed Lock-Out/Tag-Out/Block-Out Procedures, SSS-SAF-IIPP-1901, rev #6, dated February 15, 2016, Light Rail Maintenance Rules and Procedure Development, MTN-PR-5001, rev #1, dated August 21, 2015, Light Rail Maintenance Division Way, Power, and Signals Training Program, MTN-PR-6800, rev #2, dated June 27, 2011, training matrix for Maintenance Division employees.

Findings:

1. Employee #14895 was not trained in the mandatory Confined Space training.
2. Upon initial review of various required training records, CPUC Staff learned that some records were being maintained by vendors.

Comments:
Test scores were not documented on the test sheet, even though there is a space provided for test results.

A training matrix for LR Maintenance employees has been developed and shows promise, however incomplete, due to lack of interdepartmental communication. Also, during this audit process, CPUC Staff has learned that training records for various departments are maintained and kept in different locations. A streamlined data base, with access to all trainers, will better serve VTA's training process, employee transfers, and ensure mandatory/required training for various crafts are easily reviewed for the timeframe requirements as per GO143-B and VTA SSPP and SOPs.

Recommendations:

1. VTA LR Maintenance Training Department must maintain training folders and records as per MTN-PR-6800 Section 4.2 and 6.0.

2017 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SANTA CLARA VALLEY TRANSPORTATION AUTHORITY (VTA)

Checklist No.	**17**	**Element**	**Configuration Management and Control**
Date of Audit	November 15, 2017	**Department(s)**	Engineering and Transportation Program Delivery (ETPD) Operations Maintenance Engineering System Safety and Compliance
Auditors/ Inspectors	Michael Warren Daniel Kwok	**Persons Contacted**	Ken Ronsse, Deputy Director - ETPD Denise Patrick, Safety Manager Edna Pampy, Principal Safety Auditor Athar Taha, Assistant Transportation Engineer, Operations Maintenance Engineering

REFERENCE CRITERIA

1. CPUC General Order 164-D
2. CPUC General Order 143-B
3. VTA System Safety Program Plan (SSPP) version 12 dated February 2014
4. VTA MTN-PR-1001 Light Rail Configuration Management Program
5. ETPD Configuration Management (ET-CO-PR-0001)
6. System Development Configuration and Change Management Policy (BSD 003)

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Configuration Management and Control

1. Randomly select two VTA system modifications or design changes during the last 3 years to ensure configuration management documentation was properly updated to include at minimum:
   a. Engineering Design Peer Review;
   b. Design and Analysis Review by the System Safety Department;
   c. VTA Configuration Review Board (CRB) Approval
   d. Design and Analysis Review by CPUC if required;
2. Randomly select two Project Concept submitted to the RSSRB or System Safety Department and verify that:
   a. Configuration Change Request Forms were used;
   b. Potential Hazard Checklist was used
   c. Forms were circulated to the CRB for approval;

d. The System Safety Department performed a review, analysis, and approval of the Modification and Change Request Forms for the project;
e. The modification or change was reviewed and approved by CRB and or RSSRB Committees.
f. The modification or change was circulated to the proper departments prior to implementation;
g. All necessary parties or contract employees within or outside the agency were properly notified of the modification or change.
h. As-Built or In-Service Drawings are updated accordingly and filed properly

3. Verify status of 2014 Triennial Review recommendation TCAP 2016030002 and TCAP 2016030038.

FINDINGS AND RECOMMENDATIONS

Activities: Staff interviewed VTA representatives responsible for Configuration Management and Control program and conducted the following review.

VTA has two engineering departments that use their own procedures to maintain configuration management:

- Operations Maintenance Engineering: MTN-PR-1001
- Engineering and Transportation Program Delivery (ETPD): ET-CO-PR-0001

1. Staff reviewed the following System Modifications/Design Changes made to the VTA system within the past 3 years:

- Service Change Bulletin (SCB-W020):
  a. CRB meeting, informal and via email to Director of Safety and Security
  b. Signed off by RSSRB, signature of Director of Safety and Security present
  c. See (a), approved on March 3, 2016
  d. Design and analysis review not required by CPUC

  Note: Hazard Review: N/A, but included
- Service Change Bulletin (SCB-L037):
  a. Yes, schematics in document
  b. Signed off by Director of Safety and Security
  c. CRB sign off on December 2, 2015
  d. Design and analysis review not required by CPUC

  Note: Hazard Review: yes, 4 items
- Guadalupe Lift and Dust Separation Wall – P0776 and P0777:
  Staff reviewed Program Management Plan (PMP), Safety Certification Plan (SCP), Testing and Training: Shallow-Pit Car Hoist System. Engineering Construction

states that conformance checklists will be presented to RSSRB at December meeting.

2. Staff reviewed and verified the following Project Concepts submitted to RSSRB:

- Service Change Bulletin (SCB-W024):
  a. Verified service change bulletin was used, completed October 4, 2017
  b. Verified Potential Hazards Checklist is present in documentation and signed.
  c. Verified forms were circulated to the CRB for approval.
  d. Verified System Safety Department performed a review and approval of the Modification and Change Request Form.
  e. This project is required to be approved by RSSRB
  f. Modification was circulated to proper departments, verified by signatures on Configuration Change Request Form
  g. Department heads were notified of the modification or change
  h. In-Service drawings included with packet. Last update: Revision G, July 31, 2017
- Guadalupe Lift and Dust Separation Wall – P0776 and P0777
  a. The Configuration Change Request form is a procedure specific to Engineering Maintenance, not Engineering Construction who follows ET-CO-PR-0001.
  b. A potential hazards list was generated.
  c. This project is being handled by Engineering Construction who does not use a Configuration Review Board.
  d. Safety Department reviewed and signed-off on the project development.
  e. Through the Engineering Construction process (ET-CO-PR-0001), RSSRB is presented to adopt certification checklists. The department heads in RSSRB do however sign-off during the early stages of the project.
  f. See answer "e" above.
  g. Yes, Training log verified by staff for use of shallow-pit car hoist. Although, some employees were unable to be trained at time of certification and follow-up to ensure training occurred never propagated to Project Manager or Safety Department.
  h. As-builts were updated accordingly.
  Submitted: September 22, 2017
  Prepared: August 29, 2017
  Designed: September 19, 2016
  Acceptance Test: September 19, 2017

3. Staff reviewed VTA's policy System Development, Configuration, and Change Management (BSD-003) which requires each division/department that can make physical or software changes to the system must have an approved configuration management procedure. Any department is allowed to submit their own configuration

management procedure for approval, but in the absence of such, must follow the configuration management procedure of their parent department/division.

Findings:

1. Neither Engineering and Transportation Program Delivery (ETPD) nor System Safety and Compliance were aware whether the missed employees on the training list had been trained yet or not.

Comments:

None.

Recommendations:

1. VTA should develop a procedure that requires the Project Manager or designee to ensure open items after all certifications are completed and verified to a closure.

2017 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SANTA CLARA VALLEY TRANSPORTATION AUTHORITY (VTA)

Checklist No.	**18**	**Element**	**Local, State, and Federal Requirements: Employee Safety Program**
Date of Audit	November 09, 2017	**Department(s)**	Environmental Health and Safety (EH&S) System Safety and Compliance
Auditors/ Inspectors	Arun Mehta Steve Espinal	**Persons Contacted**	Karly Hutchinson: EH&S Specialist Denise Patrick, Safety Manager Julia Macke: Sr. Management Analyst

REFERENCE CRITERIA

1. CPUC General Order 164-D
2. CPUC General Order 143-B
3. VTA System Safety Program Plan (SSPP) version 14 dated February 2016
4. VTA Injury and Illness Prevention Program (IIPP)

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Local, State, and Federal Requirements: Employee Safety Program
Interview VTA personnel and review appropriate records for last 3 years to determine whether:

1. Employees are aware of the Employee Safety Program and are comfortable utilizing it. Explain how often training is provided.
2. VTA regularly holds Joint Union/Management Safety Committee Meetings. Randomly review Joint Union/Management Safety Committee Meetings Minutes
3. The Joint Union/Management Safety Committee Meetings appropriately responds to employees' complaints regarding safety problems.
4. Does VTA establish a process to review and update its IIPP as needed?
5. An appropriate procedure and reporting form is being implemented, and is distributed to all employees to effectively report safety hazards in the work place.
6. Appropriate corrective actions regarding employee safety have either been satisfactorily completed or are being actively tracked and documented.
7. Has VTA had any problems complying with local, state, or federal requirements? Review documentation of any such problems and assess how the issue was handled and resolved.
8. Verify construction projects have specific procedures in place to ensure worker protection and public safety on the job site. Verify that VTA's operating and

maintenance safety rules and procedures are included in construction contracts to bind contractors and their employees to fulfilling their roles and responsibilities safely. Verify that implementation of these procedures is the responsibility of both the contractor and VTA.

9. Verify appropriate forms of disciplinary action are taken consistently to correct employees and contractors who have not followed established safety rules and procedures.

FINDINGS AND RECOMMENDATIONS

Activities:

CPUC Staff interviewed VTA Safety & Compliance staff regarding the Local, State, and Federal Requirements for VTA's Employee Safety Program. Staff determined the following:

1. All VTA employees are given a comprehensive full day safety training on the second day of their New Employee Orientation. The safety training includes topics such as All Hazards Training, Hazard Communication, Emergency Response, etc. VTA Employees are advised to make safety as their top priority and are encouraged to report any and all hazards to VTA Authorities. Subsequent Safety Trainings are provided on a regular basis as needed and the SOP # SSS-SAF-IIPP-0401 on p. 33 of the 2016 version of the IIPP deals with different training (Initial, Annual, and Periodical). Monthly Tailgate Trainings is one of the ways; VTA continuously trains the employees on safety.
2. VTA has two employee unions: ATU 265 and SEIU 521. VTA regularly holds Joint Union/Management Safety Committee Meetings on a monthly basis. Safety & Compliance Director chairs the ATU Joint Safety Committee and Environmental Health and Safety (EH&S) Specialists serves as the SEIU Joint Committee Chair. Staff reviewed the meeting Agenda / Minutes for 11/2016-10/2017 period for both the Union Committees and it showed representatives from Operations, Maintenance, System Safety, Environmental Health & Safety, Planning, Facilities etc. participated in these meetings. The purpose of the meetings is to address employee health and safety related issues and if required take corrective actions as necessary for both VTA bus and light rail systems.
3. The Joint Union/Management Safety Committees respond to issues relating to employee health and safety. An example of ATU Safety Committee involved train operator issues with high stiffness of the Master Controller (10-12 psi with a new spring as opposed to the normal range of 3-7 psi with the old spring) was being discussed for the past 5-6 months in the ATU Committee and is finally being resolved by changing to lower pressure spring (3-5 psi), based upon employee tests and feedback. Similarly, in the SEIU Committee an issue with pumping of "platform elevator sump water" which got somehow contaminated with oil (cause yet unknown

but being investigated) was being discussed and capital appropriation was approved to hire a hazardous waste removal contractor to remove six 55 gallon drums of the oil contaminated water.

4. At the beginning of each year, IIPP committee discusses the topics needed to be reviewed. The EH&S Specialists are the current in-charge of the IIPP Committee. VTA has the committee perform monthly reviews of the IIPP procedures and discuss if updates are needed. Printed copies of the Revised IIPP go to upper management; superintendents, and supervisors, and are also available to any employee who wants it. Also electronic copy is made available via VTA Intranet Hub and is accessible by every employee. Once procedure is updated and approved, an email will go out to all the relevant employees. The IIPP Committee recently found that the VTA Blood Born Pathogen SOP was outdated and needed a major revision. This revision will come out in the 2018 revision of the IIPP. Minor revision of the IIPP are made to the electronic version and informed to relevant VTA employees and management by email.
5. VTA's Procedure 0200 – hazard report form are made available for operation, maintenance employees to report safety issues to their supervisors. CPUC Staff reviewed pp. 10 and19 of the IIPP which show procedure and forms for reporting work place hazards. Employees report hazards using "Safety or Health Hazard Reporting Form A401a. Hazards are then entered in VTA's Industry Safe Software Program's Hazard Module using Hazard Reporting Form for follow up and corrective action(s).
6. CPUC Staff reviewed Hazard Reporting Form filled out by a Transit Safety Officer on 11/2/2017 citing hazards associated with fare inspection by 3 fare inspectors of 10,000+ patrons near Levi's Stadium on game days. Other examples of hazard reporting and follow up are cited in Item 3 above regarding Stiff Master Controllers reported by train operator(s) and platform maintainers for pumping of elevator sump (contaminated) water.
7. Per VTA staff, VTA is in compliance with local, state, or federal requirements regarding employee safety. The EH&S staff reported that in 2016 it was detected that a VTA Internal Annual Training Manifest provided to persons in-charge of shipping and receiving of hazardous materials was not consistent with DOT certified training requirements under Title 49 CFR 172.700-704. This deficiency was immediately corrected by VTA by arranging to train 60 VTA personnel with DOT approved training by a certified DOT Training Contractor and plans to do so every three years in addition to the Annual Manifest Training.
8. All VTA construction projects have specific procedures in place to ensure worker protection and public safety by ensuring that the contractor documents their own safety procedures specific to their procedures and equipment in addition to strictly following VTA's employee health and safety procedures and VTA's operating and maintenance rules and procedures which are boiler plated in each and every contract. CPUC Staff reviewed a sample of VTA's boiler plate of rules and procedures which are

made an integral part of every contract. VTA provides Roadway Worker Protection Training (RWP) every Friday to contractors and employees to ensure workers protection and public safety. Also, resident inspector or engineer (in charge) is required to conduct weekly progress meeting once construction begins. VTA Inspectors perform random check during construction, to ensure construction workers have proper Personal Protection Equipment (PPE) on the job site and are following VTA's Personal Electronic Devices (PED) Rules and Procedures. All contractors need to follow the requirement of their restrictive access permit.

9. VTA ensures that appropriate forms of disciplinary action are taken consistently to correct employees and contractors who have not followed established safety rules and procedures. In IIPP – procedure 0600 Safe Work Practices and discipline procedure, it has a procedure which talks about administering progressive discipline if employees don't follow the procedure. Superintendent and supervisors enforce these disciplinary actions. CPUC Staff reviewed VTA's SOP # OPS-PL-0001 dated December 20, 2016 on the "Use of Personal Electronic Devices". CPUC Staff also reviewed the Tailgate training provided on April 27, 2017 on a VTA Guadalupe contract with "DMZ Builders". Topics discussed included: VTA's Roadway Protection (RWP), Housekeeping, Slip, Trip & Falls, and Cell Phones (PED) Usage Restrictions. CPUC Staff reviewed complaints and action against a sub-contractor employee who was observed to drive recklessly on October 24, 2017 in the Berryessa BART Yard; the contractor terminated the employee immediately. Another example of contractor (DMZ Builders) employee violating cell phone (PED) use near the tracks on October 26, 2017 was reviewed; that employee was terminated from the project immediately.

Findings:
None.

Comments:
None.

Recommendations:
None.

2017 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SANTA CLARA VALLEY TRANSPORTATION AUTHORITY (VTA)

Checklist No.	**19**	**Element**	**Hazardous Materials Program**
Date of Audit	November 6, 2017	**Department(s)**	Environmental Health and Safety (EH&S) System Safety and Compliance Operations Maintenance Department
Auditors/ Inspectors	Jamie Lau Rupa Shitole	**Persons Contacted**	Karly Hutchinson, EH&S Specialists Denise Patrick, Safety Manager Judy Kaur, LR Power Supervisor Manjit Khalsa, Sr. System Engineer

REFERENCE CRITERIA

1. CPUC General Order 164-D
2. CPUC General Order 143-B
3. VTA System Safety Program Plan (SSPP) version 13 dated February 2015
4. VTA System Safety Program Plan (SSPP) version 14 dated February 2016
5. VTA Injury and Illness Prevention Program (IIPP)

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Hazardous Materials Program

1. Select at random at least six VTA employees responsible for handling hazardous materials, and verify that they have received specific training for reporting requirements, product release or spill, and spill incident response and clean-up.
2. Verify that hazardous materials discharge/spill reports for incidents in the past 3 years have been prepared and filed properly. Randomly review records.
3. Verify if VTA has a hazardous materials (HazMat) program or plan in place including an OSHA or state equivalent compliant HazMat program (if applicable).
4. Verify that the Employee Safety Program includes a process to familiarize the employees with the hazards presented by materials used in the work place.
5. Verify the program assigns roles and responsibilities to specific departments and personnel for reviewing and approving materials used or to be purchased and used on transit agency property.
6. Verify that follow-up activities are performed to verify field use of approved materials to ensure that safe and proper use, handling, storage, and disposal methods are employed.
7. Verify that all MSDS are available to all personnel who handle or work with hazardous materials.

8. Interview VTA EH&S Department representatives to discuss VTA's hazardous materials program and the role of the department in enforcing this program. Be sure to discuss the following:
    a. The procurement process for new insecticides, herbicides, chemicals, and solvents.
    b. If a MSDS for each hazardous material is on file with the department.
    c. If the approved MSDSs have been entered into an MSDS filing system for tracking.
    d. How often are random inspections performed on site?

FINDINGS AND RECOMMENDATIONS

Activities:

1. Staff interviewed VTA representatives and reviewed the following:
    - Title 22 Hazardous Waste Management Training PowerPoint slides
    - VTA Title 22 Hazardous Waste Training sign-in sheet in year 2016
    - VTA Title 22 Hazardous Waste Training sign-in sheet in year 2017

Staff randomly selected the following six VTA employees from the rail division who work with hazardous materials:

- Employee #12180
- Employee #1575
- Employee #5673
- Employee #13219
- Employee #14716
- Employee #1613

Staff verified the Title 22 Hazard Waste Training sign-in sheets for years 2016 and 2017. The training covers reporting requirements, product release or spill, and spill incident response and clean-up. Title 22 training is required annually by VTA's SSS-SAF-IIPP-0401, Safety Training schedule. All six employees attended annual training between years 2016 and 2017.

2. There were a total of seven spills between years 2015 and 2017. Out of the seven, Staff randomly reviewed the following two incidents:

- OES #16-5266
- OES#17-3082

Staff verified the incidents have been filed properly with Office of Emergency Services (Cal OES), as they were given OES case numbers. The two incidents were also filed internally by using the Hazardous Materials Spill Log per VTA's SSS-SAF-IIPP-1601, Appendix A.

3. VTA's hazardous materials (HazMat) program is documented by the following 8 procedures in VTA's Occupational Injury and Illness Prevention Program (IIPP) manual:

- SSS-SAF-IIPP-1601
- SSS-SAF-IIPP-1602
- SSS-SAF-IIPP-1605

- SSS-SAF-IIPP-1606
- SSS-SAF-IIPP-1609
- SSS-SAF-IIPP-1612
- SSS-SAF-IIPP-1613
- SSS-SAF-IIPP-1614

The Hazardous Materials Business Plan (HMPB) is a program regulated by Santa Clara County Department of Environmental Health. VTA is required to file a HMBP and hazardous materials inventory with the county per SSS-SAF-IIPP-1602, Section 3.6.

4. VTA has the following programs covering management and training of chemical procurement, training, handling, storage and disposal:

- SSS-SAF-IIPP-1201
- SSS-SAF-IIPP-1202
- SSS-SAF-IIPP-1205
- SSS-SAF-IIPP-1301

These programs occur annually as required SSS-SAF-IIPP-0401, Safety Training.

5. SSS-SAF-IIPP-1202, Section 3.0 covers responsibilities and roles to specific departments and personnel for chemical procurement.

6. VTA performs a number of follow-up activities including but not limited to the following, to verify field use of approved materials to ensure that safe and proper use, handling, storage, and disposal methods are employed:

- VTA provides tailgate safety meetings monthly covering a variety of topics including safe and proper use, handling, storage, and disposal of hazardous materials.
- VTA's SSS-SAF-IIPP-0701 covers safety inspections of hazardous materials storage and use area.

7. VTA's MSDS data is available via Intranet (only employees can access). Staff had an over-the-shoulder view of VTA Staff's access of database on a work computer, and verified it was working properly. MSDS data is also available on CDs, in case the MSDS server is down. In case of power outage, VTA has backup generator that can power the MSDS server and computers, or a VTA staff may use a laptop (powered by battery) to load a CD with MSDS data.

8. Staff interviewed VTA EH&S representatives to discuss VTA's hazardous materials program and the role of the VTA safety department in enforcing this program. SSS-SAF-IIPP-1602 covers the hazardous materials management program. VTA safety department enforces the program through VTA's IIPPs and tailgate safety trainings for its employees.

a. SSS-SAF-IIPP-1202 covers new chemical procurement program; SSS-SAF-IIPP-1205 covers integrated pest management program.

b. Staff randomly selected the following chemicals stored at VTA's Guadalupe Yard and verified they have MSDS filed:
   - Off-line Contact Cleaner
   - Rust Proof Spray Paint
   - Antiseize High-Temperature
   - Water Additive – Graffiti Removal
   - Grease Hi-temp Unirex N2
   - Putty Flowable Finish
   - Aero Shell Grease 6

c. Staff randomly picked 3 recently approved chemicals from a list and verified have MSDS filed:
   - Febreze
   - 440 Express
   - Alpine D Dust Insecticide

d. SSS-SFA-IIPP-0701, Section 3.3 and 3.4 indicate superintendents and facilities maintenance representatives are to schedule safety inspections of facilities, grounds and equipment monthly, but not necessary random inspections. Such safety inspections include identifying hazards materials. Staff reviewed monthly inspection records from November 2014 to October 2017, and found the following months lacking required inspections by the designated personnel:
   - Facilities Maintenance Representative: no inspections in February, May, July, and from September to November 2015.
   - LR Maintenance Superintendent: no inspections from November 2014 to May 2016.
   - WP&S Maintenance Superintendent: no inspections in November and December 2015, and October 2016.

   Staff reviewed daily inspection records for hazard waste storage tanks at the Guadalupe Yard dated from June 1, 2017 to November 6, 2017. Staff found VTA did not inspect such tanks daily as required by its SSS-SAF-IIPP-0701, Section 4.1.1. Out of the approximate 5-month period, Staff found the following dates missed inspection:
   - June 3, 4, 10, 11, 17, 18, 24, 25;
   - July 1, 2, 4, 8, 9, 15, 16, 22, 23, 29, 30;
   - August 5, 6, 12, 13, 18-20, 26, 27;
   - September 1-5, 9, 10, 12-30;
   - October 1-30;
   - November 2-5.

Staff reviewed weekly inspection records for hazardous waste containers at the Guadalupe Yard from February 1, 2016 to November 6, 2017. Staff found VTA inspected such containers weekly as required by its SSS-SAF-IIPP-0701, Section 4.1.2.

Findings:
1. VTA's facilities maintenance representatives and superintendents did not inspect facilities, grounds and equipment monthly for unsafe working conditions, including hazards materials, as required by its SSS-SFA-IIPP-0701, Section 3.3 and 3.4.
2. VTA did not inspect its hazards waste storage tanks daily as required by its SSS-SAF-IIPP-0701, Section 4.1.1.

Comments:
None.

Recommendations:
1. VTA should comply with its document SSS-SFA-IIPP-0701, Section 3.3, 3.4 and 4.1.1 and conduct inspections accordingly.

2017 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SANTA CLARA VALLEY TRANSPORTATION AUTHORITY (VTA)

Checklist No.	**20**	**Element**	**Drug and Alcohol Program**
Date of Audit	November 13, 2017	**Department(s)**	Human Resources
Auditors/ Inspectors	Joey Bigornia Howard Huie	**Persons Contacted**	Linda Durham, Senior HR Analyst Sommer Goecke, HR Analyst Vickie Moreno, Human Resource Assistance

REFERENCE CRITERIA

1. Code of Federal Regulations, Title 49 Part 655 – Prevention of Alcohol Misuse and Prohibited Use in Transit Operations
2. CPUC General Order 164-D
3. CPUC General Order 143-B
4. VTA System Safety Program Plan (SSPP) version 13 dated February 2015
5. VTA System Safety Program Plan (SSPP) version 14 dated February 2016
6. VTA Drug and Alcohol Policy

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Drug and Alcohol Program

Interview VTA representatives and review appropriate records prepared in the past 3 years to:

1. Verify that the number of employees in safety-sensitive positions who tested non-negative or refused to take the test was reported accurately.
2. Verify that the Substance Abuse Program meets current FTA requirements.
3. Verify that VTA has a policy for managing the use of over-the-counter drugs.
4. Select at random at least two safety-sensitive employees who tested non-negative for drugs or alcohol in the past 3 years. Determine whether:
   a. The employee was evaluated and released to duty by a Substance Abuse Professional (SAP);
   b. The employee was administered a return-to-duty test with verified negative results;
   c. Follow-up testing was performed as directed by the SAP according to required follow-up testing frequencies in the reference documents after the employee returned to duty.
5. Verify that consequences for repeat offenders were carried out as required in the reference.

6. Assess whether VTA has ever undergone a federal or state audit of its drug and alcohol program?
    a. If so, what were the outcomes?
    b. Have all findings or recommendations been addressed?
7. Review training program curriculums to verify VTA is training all employees regarding its drug and alcohol policy.
8. Confirm that this information was accurately reported to FTA through the RTA's annual submission to the Drug and Alcohol Management Information System (DAMIS).

FINDINGS AND RECOMMENDATIONS

Activities:
Interviewed VTA Drug and Alcohol Manager responsible for the Drug and Alcohol Program and determined the following:

1. VTA provided Staff with a list of VTA employees, dated 2014-2017, which identified employees who were tested for random, follow-up, accident, pre-employment, and return to duty (RTD). The list identified when the test date occurred, RTD date, and treatment plan prescribed (e.g. terminated, not referred to Substance Abuse Program, probationary release). Staff reviewed the Drug and Alcohol Annual Reports to FTA for Years 2014-2016 and verified the results matched the number of employees in Safety Sensitive Positions tested.
2. VTA presented Staff with a letter from the FTA, dated September 22, 2016, from the Drug and Alcohol Program Manager, FTA Office of Transit Safety Oversight, to VTA Human Resources Manager stating VTA's Drug and Alcohol program is compliant with FTA's guidelines.
3. VTA Substance Abuse Program, dated August 2017, Section 5.1.3 Legal Drugs, states the conditions of use and what is required of the employee who uses prescribed and over the counter drugs before starting their shift and/or while on their shift. "Any employee taking prescription or over the counter medication including but not limited to those medications that contain alcohol and has the potential to adversely affect job performance must report this treatment to his/her immediate supervisor before reporting to perform work. If the medication is to be taken at work, the employee must notify his/her supervisor."
4. Staff selected two-VTA employee files with the following results:

    Employee #1:
    a. Evaluated June 1, 2015 – positive test;
    b. Evaluated by SAP on July 2, 2015 with result July 7, 2015
    c. Currently on 5-year SAP Plan started October 21, 2017.

Employee #2:

a. Evaluated March 25, 2014 – positive test;
b. Evaluated by SAP on March 1, 2014, Return to Duty on May 6, 2014
c. Assigned a 3-Year SAP plan which ends on 2018. Tests scheduled for follow-up July/August 2014 but rescheduled to September 29, 2014. Last test occurred on November 12, 2015 and then employee retired on February 1, 2016 before 3-year plan ended.

5. VTA's Light Rail Operations did not have any repeat offenders within the last 3 years. However a bus driver was dismissed for repeated violations under VTA's Substance Abuse Program, dated August 2017, Exhibit C-1, Agreement between Amalgamated Transit Union - Local 265 (ATU) and SCVTA, dated January 8, 2015, Section II Discipline for Positive Pre-Change-Of Class, Pre-Employment (Return From Leave/Resumption of Safety Sensitive Duties), Random, Follow-Up and Reasonable Suspicion (Refer to 49 CFR Section 653.43) – Second Occurrence. The person tested positive for THC (marijuana) on multiple occasions from March 2011 – May 2015 and was dismissed. HR specified that if that person had been in VTA's Light Rail Operations, he/she would have been dealt with using the same protocol.
6. The FTA Drug and Alcohol Compliance Auditing Program Final Report was issued 4/8/2016. The Report identified FTA's findings, FTA Rule Requirement and deficiencies found. VTA responded with corrective actions to the FTA's deficiencies noted, and FTA responded by letter, dated September 22, 2016 acceptance/closed-out the corrective actions.
7. VTA presented Staff with an email printout of Maintenance Supervisors that have completed the Reasonable Suspicion Training Webinar and classroom training from 2008 to 2017. VTA also presented Staff with a sign in sheet for Drug and Alcohol Awareness for New Employees from 2004 to 2017 to review.
8. Staff reviewed VTA's Drug and Alcohol Management Information System Reports, dated 2014-2016. Annual reports were sent on February 6, 2015 for 2014, March 16, 2016 for Year 2015, and March 13, 2017 for 2016. No exceptions were noted.

Findings:
None.

Comments:
None.

Recommendations:
None.

2017 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SANTA CLARA VALLEY TRANSPORTATION AUTHORITY (VTA)

Checklist No.	**21**	**Element**	**Procurement Process**
Date of Audit	November 16, 2017	**Department(s)**	Procurement, Contracts and Material Management (PCMM) Operations Maintenance Engineering System Safety and Compliance
Auditors/ Inspectors	Daniel Kwok Mike Warren	**Persons Contacted**	Sunny Drennan, Purchasing Manager, CAMM Heidi Samuels, Deputy Director of Transit Operations Manjit Khalsa, Sr. Systems Engineer Athar Taha, Assistant Transportation Engineer E. Lynn McFadden, Transit Safety Officer Edna Pampy, Principal Safety Auditor

REFERENCE CRITERIA

1. CPUC General Order 164-D
2. CPUC General Order 143-B
3. VTA System Safety Program Plan (SSPP) version 13 dated February 2015
4. VTA System Safety Program Plan (SSPP) version 14 dated February 2016
5. VTA Procurement Policy, Memos, and Procedures
6. VTA MTN-PR-8001 Inspection, Testing for Parts Certification
7. VTA Quality Assurance Plan

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Procurement Process

Interview VTA representatives and review appropriate documentation for the past 3 years to:

1. Verify that VTA personnel are following applicable Procurement and Quality Assurance Policy and Procedures, and ensure safety issues and concerns are addressed in the procurement process.
2. Determine that adequate procedures and controls are in place to preclude the introduction of defective or deficient equipment into the VTA System.
3. Determine that adequate procedures are in place to deal safely with defective or deficient equipment in the event such equipment is introduced into the VTA System.
4. Ensure that any updated rules relevant to VTA procurement process are communicated appropriately.
5. Ensure VTA addresses the following:

a. Is the procurement process tied to VTA's hazard management process?
b. Are procurements of new equipment and material first reviewed by other departments such as the safety department, engineering, operations, and/or maintenance staff to verify the new equipment or materials won't present a hazard to the existing system?
c. Do all procurement processes for hazardous materials address all appropriate rules and regulations?

6. Interview Safety Department representatives and have them explain, how they work through their procurement process to ensure that safety issues are identified, assessed, and resolved.

FINDINGS AND RECOMMENDATIONS

Activities:

Staff interviewed VTA representatives and have determined the following:

1. VTA utilizes a Material Master list in SAP for inventorying parts. If there is to be a purchase of new parts (Procedure MTN-PR-8001), Engineering Maintenance will send all new parts through the Configuration Management process which goes through RSSRB, and any additional safety concerns may be raised there. If a part needs to be modified, then the engineer making the change must fill out an Inventory Change Request form. If the item is deemed to be safety sensitive, then it must go through RSSRB for review and approval. VTA provided Change Request Form Control #33 with approval form for Staff's review. No exceptions noted.
2. VTA Parts Clerk reviews all receiving items to ensure parts package received are correct and accurate. Then the end user ensures that the parts ordered are correct. Commonly ordered parts (those existing and purchased from an approved vendor) are not checked by Engineering Maintenance. New or changing parts are reviewed and matched against drawing and design specs for correctness (i.e. overhauls/rebuilds). Staff reviewed LRV procurement part PO#: 4636139. No exceptions noted.
3. If there is defective part which was introduced into the system, and caused some kind of failure, it would undergo a failure analysis (LRA-PR-0530, Section 3.9.4). VTA provided a stick insulator failure, dated 10/2/1017, as an example and analysis performed by a 3rd party engineer. No exceptions noted.
4. VTA states that if there is a new procedure or a change in existing procedures, there would be VTA wide distribution email sent. VTA provided a Memo, dated August 9, 2016, sent to all VTA Staff regarding Automated Contract Workflow Update. VTA also states all procurement policy are on the VTA HUB (intranet).
5. VTA states the following:
    a. Safety Department states all procurement items are forwarded to the safety department for sign off. Potential hazards are tied into the configuration management process. However, the procurement process does not go through

the SSPP Hazard Management Process. VTA states they will update the SSPP to include procurement process go through the Hazard Management program.

b. New equipment must go through the RSSRB for approval. Anytime there is a change in parts it would also go through RSSRB review.
   VTA provided Staff the following example: Spring Tension Lever Replacement
   CPUC Staff reviewed emails regarding the project dated October 25, 2017 with discussion for all interested parties.
   Staff verified Risk Department, Safety Department, Operations Superintendent, Operations Engineering Department, and Union Representatives were included in the email discussion.
c. Hazardous materials cannot be purchased without an existing MDS number. If one does not exist, then material would be considered "new" and must go through the New Chemical Procurement process, which is managed by the Environmental Health and Safety Department. This process is outlined in VTA Procedure SSS-EHS-IIPP-1202.

6. As of September 17, 2015, PCMM sends Director of Safety a list of new requisition requests (Mfg/MPN/Description) for signature. If Safety has any concerns, they will go to subject matter experts for more information.
   Staff verified signed approval letters from the following dates:
   - 11/15/2017
   - 10/16/2017
   - 4/29/2016
   - 2/4/2016
   - 10/20/2015
   - 9/28/2015
   - 9/25/2015

Findings:

1. The procurement process does not go through the SSPP Hazard Management Process.

Comments:

None.

Recommendations:

1. VTA should update the SSPP to include procurement in their Hazard Management program.

2017 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SANTA CLARA VALLEY TRANSPORTATION AUTHORITY (VTA)

Checklist No.	**22**	**Element**	**CPUC GO 172 – Personal Electronic Device Prohibitions/In-cab Cameras**
Date of Audit	November 15, 2017	**Department(s)**	LRV Maintenance Transportation Operations Wayside Maintenance System Safety and Compliance
Auditors/ Inspectors	Michael Rose Debbie Dziadzio Richard Fernandez	**Persons Contacted**	George Sandoval, Operations Mgr., MOW David Hill, Deputy Dir, LR Transit Operations Janice Broock, Transport. Superintendent Paul Megia, Transit Division Supervisor Phil Sharp, LR Equipment Superintendent Linda Durham, Sr. HR Analyst Lynn McFadden, Transit Safety Officer Bruce Turner, Transit Safety Officer

REFERENCE CRITERIA

1. CPUC General Order 172
2. VTA System Safety Program Plan (SSPP) version 13 dated February 2015
3. VTA System Safety Program Plan (SSPP) version 14 dated February 2016
4. VTA PED Policy
5. VTA SOP 1.2 Video Based Random Monitoring and Enforcement

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

General Order (GO) 172 Personal Electronic Device Prohibitions/In-cab Cameras Compliance

Interview VTA representatives and review appropriate documentation to determine the following:

Part 1: In-Cab Cameras

1. Verify in-cab cameras are installed on all light rail vehicles.
   a) Which types vehicles have cameras, and if any exemptions for vehicles without cameras.
   b) What inspection program exists for in-cab camera systems?
   c) Are the cameras capable of continuous recordings for at least eight (8) continuous operational days?

2. Verify if in-cab camera recordings are being reviewed following reportable accidents and incidents and what is in the criteria?
3. Determine if a recording footage retention policy exists and how long footage is available for potential rule violations.

Part 2: Zero-Tolerance Policy

1. Verify if a zero-tolerance policy for personal electronic device usage is implemented and employees who violate this policy are being disciplined
2. Verify the Zero Tolerance Policy identifies disciplinary actions, steps up to and including discharge, and an appeals process for violators.
3. Determine if VTA has records of GO172 violations on-file for the past 3 years.
4. Determine if VTA has a training class requirement for employees to complete on PED usage.
    a) Review employee records to determine if initial and refresher training is conducted for all required employees at least once every 2 years.
    b) Verify VTA's PED training policy is administered to Train Operators, Controllers, and Wayside employees.
    c) Review at-least 3 employee records from Train Operators, Controllers, and Wayside workers to verify the RTA to provide roll-call sign-in sheet for all PED policy courses occurring in the past 3 years. Select several required staff, preferably from differing job categories, and verify that training/retraining was completed.
5. Perform a field check to verify the PED Reminder Decal is installed on light rail vehicles.

Part 3: Monitoring and Enforcement

1. Verify VTA conducts periodic random monitoring (eg. video footage, etc.) inspections for GO 172 violations and records are documented.
2. Verify VTA performs periodic operations evaluations and inspections and records are on file for at least 3 years.

FINDINGS AND RECOMMENDATIONS

Activities:

CPUC Staff interviewed VTA personnel and was advised that all LRVs have in-cab cameras installed as per General Order 172, Section(s) 4.1 and 4.2. VTA currently owns four historical cars which are exempt and do not have in-cab cameras installed.

CPUC Staff asked about the inspection program for the in-cab camera system and was advised that a new inspection program started in June 2017. Inspections are performed by VTA's internal security team (IT CCTV) which now ensures all LRV camera systems are inspected at least once per 30 days (20/week). CPUC Staff then reviewed the LRV camera matrix which lists the monthly camera testing used to confirm LRV camera inspections and frequency. During the inspection, camera operations, ensuring clear picture, lens angle adjustment are according to VTA requirements. If a camera is not performing as intended, the LRV is taken out of service until repairs and adjustments are made.

VTA advised that the camera loop is 14 days which meets GO 172, Section 4.1 requirement of at least eight days.

When a reportable accident/incident occurs, VTA Transportation Superintendent requests a data pack (video from various camera angles). In approximately 1 day, the data pack is downed onto a VTA secured shared drive, at which time, the Superintendent will burn the video onto a disc which will remain in the accident/incident file folder.

VTA advised there recording footage retention policy is according to VTA Records Retention Policy (AS-IT-PR-5210) in compliance to GO 172, Section 6.3 and Section 4.4.

CPUC Staff reviewed VTA's Zero Tolerance Policy regarding PED violations which contains a Discipline section that notes their progressive discipline policy and an appeals process for violators.

CPUC Staff reviewed records regarding PED observations and violations that are retained for 7 years.

CPUC Staff interviewed Technical, Service Management, LR Maintenance, and LR WP&S Training personnel and determined VTA PED policy and CPUC GO172 are covered during training. During the past two weeks, CPUC Staff reviewed several training records from all crafts and observed PED training records in all employee files.

While CPUC Staff rode VTA system for the past two weeks and observed the required PED Reminder Decal was installed on all light rail vehicles that were occupied by CPUC Staff.

CPUC Staff audited VTA Transportation Superintendent and her procedures regarding periodic random monitoring inspections for PED violations and records. During the audit, CPUC Staff reviewed records for the past 3 years. CPUC Staff found the video based enforcement and random monitoring program to be compliant with VTA SSPP (2/2016) Element 12 and CPUC GO 172.

CPUC Staff learned that the VTA Deputy Director, LR Transit Operations, upon learning about a CPUC PED violations inspection report, initiated a PED Safety Blitz that included all VTA personnel to underline the severity of PED violations as governed by CPUC GO 172.

Findings:
None

Comments:
The in-cab camera system has no way to verify that the camera is operational during daily inspection. During the pre-trip inspection, the Operator can only verify that the camera is on or off. Therefore, there is a possibility that a camera can be inoperable for up to 29 days.

VTA Transportation Superintendent goes above and beyond her required duties regarding GO172 compliance expectations. CPUC Staff noted that the Superintendent ensures VTA personnel are aware of CPUC 172 regulation by posting bulletins, rule of the week, posters, and one on one interaction as well as fulfilling the requirements set forth in GO 172.

Recommendations:
None

2017 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SANTA CLARA VALLEY TRANSPORTATION AUTHORITY (VTA)

Checklist No.	**23**	**Element**	**CPUC GO 175 – Rules and Regulations Governing Roadway Worker Protection Provided by Rail Transit Agencies and Fixed Guideway Systems**
Date of Audit	November 17, 2017	**Department(s)**	Transportation Operations Light Rail Technical Training Maintenance Training System Safety and Compliance
Auditors/ Inspectors	Matthew Ames Salvador Herrera Rupa Shitole	**Persons Contacted**	Lynn McFadden, Transit Safety Officer Antonio Tovar, Transit Safety Officer Daniel Hecht, Ops Mngr. LRV Maintenance George Sandoval, Ops Mngr. MOW Monte Bjerke, LR Maintenance Instructor Diego Carrillo, LR Training Supervisor Janice Broock, Transport. Superintendent

REFERENCE CRITERIA

1. CPUC General Order 175
2. VTA System Safety Program Plan (SSPP) version 13 dated February 2015
3. VTA System Safety Program Plan (SSPP) version 14 dated February 2016
4. VTA RWP Program

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

General Order (GO) 175 Rules and Regulations Governing Roadway Worker Protection Provided by Rail Transit Agencies and Fixed Guideway Systems

Interview VTA representatives and review appropriate documentation to determine the following:

Part 1: General Topics

1. Verify Roadway Worker Protection Program complies with G.O. 175.
2. Verify a separate dedicated manual describing all necessary roadway worker safety procedures and rules from VTA's rule book(s), and the manual is available to all roadway workers during job performance.

3. Verify VTA's compliance test program includes Roadway Worker Protection (RWP) rules, the rules to assess compliance and if rule revisions are included in the dedicated manual (No. 2 above).
4. Verify type of flag protection provided to roadway worker safety. If an established flag protection procedure exists, is this included in the dedicated manual (No. 2 above).
5. Review the VTA's safety equipment requirements for roadway workers and verify policy requires all employees who access the mainline are required to wear high visibility clothing (safety vests or jumpsuits).
6. Verify VTA's policy requires anyone with access to the mainline (by request, easement, or other form of permission) is required to complete the required RWP training, or be escorted by a RWP-trained employee.

Part 2: Job Safety Briefings

1. Review VTA's employee in charge (EIC) roadway work site to provide a safety briefings sign-in sheets and verify that the briefings required the following aspects, when applicable:
   a) The general work plan.
   b) The hazards involved and safety protection provided such as presence of roadway maintenance vehicles, adjacent tracks, and any need to widen track zone.
   c) Personal protective equipment requirements.
   d) Identification and location of key personnel, such as the watchperson and EIC.
   e) Flag use and placement.
   f) A predetermined "place of safety," where workers can move to within 15 seconds before rail vehicles moving at maximum speed authorized on that track can pass their previous location on the track. Considerations such as visibility, noise interference, and time required to get to the place of safety must be discussed.
   g) The means of communication amongst roadway workers to be used.
   h) Acknowledge each employee understands the rules to be used.
   i) If a watchperson is used, the watchperson and all other employees must receive a review of their duties – specifically, to provide a warning in compliance with the aforementioned 15-second rule, and to refrain from performing or assisting in any other type of work.
2. Verify VTA's practice to conduct follow-up safety briefings, in cases where the crew or scope of work changes after initial safety briefing.

3. Verify VTA's practice to conduct safety briefings through a discussion between the roadway worker and employee providing authorization to enter the roadway, which includes the protection to be used, in cases of an individual roadway worker moving from one location to another, or performing a minor task.

Part 3: Roadway Worker Protection Training

1. Verify VTA's adopted Roadway Protection (RWP) training program educates workers about the hazards of working along the right-of-way, and the methods to safely work on the right-of-way.
   a) Request VTA to describe their RWP training program.
   b) Ensure the training program includes classroom training.
   c) Ensure the training program includes experience in a representative field-setting.
   d) Ensure the training program covers the VTA's rules and procedures.

2. Review VTA's job types/classifications which are required to attend RWP training and:
   a) Verify no employees whose duties are those of a rail worker are required to perform work without training, at maximum intervals of 24 months.
   b) RWP training/re-training sessions sign-in sheets with different job classifications and training certificates for the past 3-years are on-file.
3. Verify the RWP training classes provide an opportunity for trainees to raise and discuss issues regarding the effectiveness of the program and educate employees about the functions of various persons involved with RWP procedures.

Part 4: Near-Miss Reporting Programs and Record Keeping

1. Review VTA's program for reporting and recording near-misses regarding roadway worker protections and verify:
   a) A policy statement supporting the near-miss program signed by the CEO.
   b) A process to encourage and allow roadway workers to report near-misses.
   c) Methods to store, easily access, and track near-misses and corrective actions.
   d) Analysis to identify primary and contributory causal factors, and implementation of corrective actions.
2. Verify that the RTA periodically reviews the effectiveness of its near-miss program, and adjusts it in response to changes in industry practices.
3. Verify VTA's near-miss records are on file for the past 3-years and are available for CPUC staff review if requested.

Part 5: Compliance with Minimum Controls / Limitations Prescribed in G.O. 175

Review VTA's RWP program and verify:

1. When performing the following types of work, at track other than that at its yard(s) and end-of-line storage track, the RWP specific minimum controls and limitations comply with GO175 Sections 6.1 through 6.3 for:
   a) Moving from one location to another – Requirements described in Section 6.1.
   b) Performing minor tasks – Requirements described in Section 6.2.
   c) Performing visual inspections, maintenance, and repairs. Using hand tools, machines, or equipment. All other roadway worker / crew activities not covered in Sections 6.1 and 6.2 – Requirements described in Section 6.3.
2. Verify VTA's RWP complies with yard and end-of-line storage track requirements.

FINDINGS AND RECOMMENDATIONS

Activities:

CPUC Staff interviewed the VTA personnel and noted the following:

Part 1:

1) Staff verified that the Roadway Worker Protection Plan (RWPP) generally complies with General Order 175-A.
2) Staff verified that a separate dedicated manual is provided to all roadway workers.
3) Staff verified that VTA's compliance test program includes RWP.
4) Staff verified that flag protection is provided and the procedure exists in the RWP manual.
5) The RWPP requires PPE, including high visibility clothing, flag protection and training.
6) Staff verified that VTA's policy requires anyone accessing the mainline must complete RWP training.

Part 2:

1) Staff witnessed several EIC Job Safety Briefings and determined that VTA personnel complied with GO 175-A and VTA RWPP.
2) Staff witnessed several follow-up Job Safety Briefings and determined that VTA personnel complied with GO 175-A and VTA RWPP.
3) Staff witnessed VTA's practice of discussing RWP.

Part 3:

1) Staff reviewed the RWP training program, records and interviewed trainers. The RWP Training Program is generally in compliance with GO 175-A and VTA RWPP. Several opportunities exist in the training of RMM Operator's.
2) Staff reviewed training records of personnel who attended RWP training and determined that the appropriate personnel attended training. Personnel attended training at the appropriate intervals and records are on file.
3) Staff verified that RWP training provides opportunities for trainees to raise and discuss issues about the program.

Part 4:

1) Staff reviewed the Near-Miss Reporting Program, records and interviewed appropriate VTA personnel and determined that few reports have been received. The reports require follow-up to be conducted per policy.
2) Staff verified that VTA reviews the near-miss program and has yet to adjust the program.
3) Staff verified that one near-miss record is on file.

Part 5:

1) Staff verified that VTA personnel generally comply with the minimum requirements in GO 175-A. Staff conducted field inspections and VTA personnel complied with GO 175-A and VTA RWPP.
2) Staff verified that VTA personnel generally comply with the minimum requirements in GO 175-A for yard and end of line tracks.

<u>Findings:</u>

1. RWP Near Miss Reporting requires investigation and follow-up to be conducted, and follow-up results were not available.

<u>Comments:</u>

1. Roadway Maintenance Machine (RMM) operators need to be trained on the operation, maintenance and safety of assigned machines.
2. Department Manager's/Supervisor's should conduct random unannounced field observations of RWP activities.

Recommendations:

1. VTA should comply with GO 175 A and RWP Near Miss Reporting procedure, specifically, conduct follow-up and track results.